



REPORT
OF THE
COMMITTEE ON INDIGENOUS SYSTEMS
OF MEDICINE

VOL. II
APPENDICES

PUBLISHED BY THE MINISTRY OF HEALTH
GOVERNMENT OF INDIA

1948

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THE SCIENCE AND ART OF INDIAN MEDICINE

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APPENDIX A-I (1)

RESOLUTION No. 13 OF THE NATIONAL PLANNING COMMITTEE RELATING TO INDIGENOUS SYSTEMS OF MEDICINE.

"An attempt should be made to absorb the practitioners of the Ayurveda and Unani systems of medicine into the State Health Organisation by giving them further scientific training where necessary. Medical training in every field should be based on scientific method."

APPENDIX A-I (2)

RESOLUTION No. 11 RELATING TO INDIAN MEDICINE,

Adopted by :

THE CENTRAL/PROVINCIAL HEALTH MINISTERS' CONFERENCE,
HELD IN NEW DELHI ON THE 10TH, 11TH AND 12TH
OF OCTOBER, 1946.

1. In accordance with the recommendations of the National Planning Committee this Conference resolves that adequate Provision should be made in the Centre and the Provinces :—

- (a) for research in and the application of the scientific method for the investigation of the indigenous systems like Ayurveda and Unani with reference to (1) maintenance of health and (2) prevention and cure of disease,
- (b) for starting of schools and colleges for training for diploma and degree courses in Indigenous Systems of Medicine, and
- (c) for post graduate courses in Indian Medicine for graduates in Western Medicine

2. In accordance with resolution No. 13 of the National Planning Committee this Conference resolves to absorb the practitioners of Ayurvedic and Unani Systems of Medicine into the State Health Organisation by giving them further scientific training wherever necessary as health personnel, like doctors, physical training experts (Ustads), sanitary staff, masseurs, nurses, midwives, etc.

3 This Conference resolves that in the Central Council and Provincial Health Boards and Councils the departments and practitioners of Indian Medicine should be given due representation, wherever possible

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APPENDIX A I (3)

LETTER FROM THE GOVERNMENT OF INDIA IN THE DEPARTMENT OF HEALTH TO COL SIR R N CHOPRA C I E I M S (RETD) CONVEYING THE CONSTITUTION OF THE COMMITTEE ON INDIGENOUS SYSTEMS OF MEDICINE

No F 199/46 PR

GOVERNMENT OF INDIA

DEPARTMENT OF HEALTH

New Delhi the 13th March 1947

From

Prem Krishen Esquire I C S

Deputy Secretary to the Government of India

To

Sir R N Chopra I M S (RETIRED)

Director Drugs Research Laboratories

Jammu Tawi

Sir,

Subject Committee on Indigenous Systems of Medicine

117

I am directed to say the Government of India have appointed the undermentioned persons to serve on the Committee to consider the measures to be taken to increase the usefulness of the indigenous systems of medicine

- | | |
|--|----------|
| 1 Sir R N Chopra I M S (Retd) | Chairman |
| 2 Bhishagratna Dr A Lakshminpathi D A M B & C M Member Board of Advisers on Indigenous Systems of Medicine Madras | Member |
| 3 Dr Balkrishna Chintamani Lagu A V V M L A President Board of Indian Systems of Medicine Bombay | |
| 4 Dr B A Pathak Principal Benares Hindu University Ayurvedic College Member, U P Board of Indian Medicine | |
| 5 Shifa ul mulk Hakim Habib ur Rahman Principal Tibbia College Dacca (Died before the Committee started its work and was replaced by) Shifa ul Mulk Hakim Nisar Ahmed Khan No 19 Zakeria Street Calcutta | |

6	Shifa ul mulk Hakim Mohd Hassan } Qarshy, Principal, Tibbia College, Lahore	"
7	Hakim Naseeruddin Ahmed Khan, } Banglo Bab ul Haq Himayatnagar, Hydora } bad, Deccan	"
8	Major M H Shah MBBS, MRCS, } MRCP, (Lond) DPM, (Eng), IMS, Superin } tendent, Irwin Hospital Delhi	
9	Dr B N Gosh, MBE FRFPS, FRS, } (Edin) Professor of Pharmacology, Carmichael } Medical College, Calcutta	"
10	Vardya Yadavjee Trikumjee Acharya, } Cathedral Street, Bombay	'
11	Dr A U Butt, Principal Tibbiya Col- } lege, Aligarh	"
12	Mr G D Sondhi, MA IES (Retd)	Secretary

The Committee will be empowered to co opt local provin-
cial representatives at any place it may visit during its tours
In particular, the Government of India would like to have the
advise of the Committee on the following points

- (1) The provision that should be made for research in,
and the application of scientific methods for the
investigation of the Indigenous Systems of Medicine,
such as Ayurveda and Unani Tibbi with reference to
maintenance of health and the prevention and cure of
disease
- (2) The measures to be taken to improve facilities for
training in Indian Systems of Medicine
- (3) The desirability of State control of the practice of
those systems of medicine and
- (4) The other measures to be taken to increase the useful-
ness of the systems to the public as part of a com-
prehensive plan

2 The Report of the Committee should kindly be submit-
ted to the Government of India as early as possible

I have the honour to be,

Sir,

Your most obedient servant

(Sd) PREM KRISHEN,

Deputy Secretary

APPENDIX A-1 (4)

SPEECH DELIVERED BY THE HONBLE MR. GHAZNAFAR ALI KHAN
 MINISTER FOR HEALTH IN THE INTERIM GOVERNMENT, AT
 THE INAUGURATION OF THE COMMITTEE ON INDIGENOUS
 SYSTEMS OF MEDICINE ON SATURDAY THE 22ND MARCH
 1947 AT NEW DELHI

Sir Ram Nath and Gentlemen

It gives me great pleasure to welcome you and to address the inaugural meeting of your Committee

India is faced with many vital and urgent problems. Among these not the least vital and urgent are the problems of the health of the people and of medical relief for them.

These problems were thoroughly studied by the Committee of Health Survey and Development which met under the chairmanship of Sir Joseph Bhore. But for cogent reasons the Bhore Committee did not go into the matter of medical relief which could be provided by the Indigenous Systems of Medicine and left it to the Provincial Governments to decide what part, if any, should be played by the indigenous systems in the organisation of public health and medical relief of the country.

This matter was taken up at a recent conference of the Provincial Ministers of Health and in pursuance of their resolution the Government of India in the Department of Health have set up your Committee to consider and recommend the steps that should be taken to improve facilities for research and training in indigenous systems and generally to increase their usefulness to the public.

Gentlemen, considering that at present only 20% of medical relief is provided by the modern allopathic system, the investigation entrusted to you regarding the part to be played by the Indigenous Systems of Medicine is of cardinal importance.

No doubt there have already been a number of Committees set up by Provincial Governments to inquire into the possibility of extending the relief provided by the Indigenous Systems, but the composition of these Committees has been confined mostly to the experts and practitioners of these systems.

Yet, medical relief is not a matter of individual systems, and the science of medicine is not the sole possession of any one school or system. Time has come to consider the matter in a comprehensive way. It is with this point in view that it has been decided to set up your Committee, comprising distinguished representatives of the three important systems, the Ayurvedic, the Unani-Tibbi, and the Allopathic. Regarding the selection of the personnel of the Committee, I may explain that the Provincial Governments were asked to recommend the names of suitable exponents of the Unani and Ayurvedic systems of medicine. Three Vaidas have been selected from among those recommended by the U P, Bombay and Madras Governments. Three Unani Hakims have been selected from among those recommended by the Punjab and Bengal Governments and the Chief Commissioner of Delhi. To this number have been added three allopathic doctors, who are known to have sympathetic attitude towards the indigenous systems. It also gives me real satisfaction that I have been able to secure the help of such an outstanding person as Col Sir R N Chopra, to be your Chairman. Sir Ram Nath is well known as a person of very catholic views, wide experience and learning and one who, apart from his contribution to the medical science in general, has contributed very extensively to the store of knowledge about Indigenous Medicine.

Gentlemen, I am not a Vaid, or a Hakim, or a Doctor. But as representing the interests of the common man, I feel strongly that the medical relief provided to the people must not only be economic and popularly acceptable, but also one that is based on rational and scientific lines.

The state of medical relief in India leads one to a very pertinent enquiry, as to whether the three systems can not be combined into one all comprehensive system. For, medicine, gentlemen, is not a bundle of dogmas or esoteric theories set down at one time and valid for all time. It is a matter of science, of cause and of effect, of test and proof, and a matter of constant adaptation to the ever changing conditions. Considered thus, it should not be exclusive but should include all that the experience of mankind has proved to be efficacious, all that practice of experts has shown to be beneficial. Why not then a synthesis, a gathering into one of the medicine and surgery, ancient and modern, Indian and Western?

So, gentlemen, medical science should have no barriers of systems, of civilisations and of cultures, of the Eastern and

Western Medicine should be the common possession of mankind, and as such, any thing which is of value any thing which the systems—old or new—have to contribute should be pooled together and placed at the service of suffering humanity

Two considerations strengthen me in placing this view before you

Already, the Indigenous Systems have borrowed considerably from each other and also from the Western System and the process still continues

And secondly India being a poor country can ill afford to have three systems of medicine running side by side each having its own practitioners and hospitals and sanatoria its laboratories, and trained staff

For these reasons I hope you gentlemen will strive to work out not only a system of medicine and of medical relief of the most extensive nature but one based on rational lines capable of proof and verification and thus of general acceptance The heritage of India coupled with the discoveries of the West should produce a system universal in its application and general in its benefits India which has contributed so greatly to many sciences may yet again enrich the world with a system of medicine effective inexpensive and yet rational and therefore acceptable

To achieve this noble object it is essential not only that we plan to extend the facilities for medical relief but also that we carry on research and enquiry conduct experiments and test clinically, and standardize and systematize our medical knowledge

Gentlemen I hope that you will take up your duties in this spirit You have my best and sincere good wishes in the task before you

APPENDIX A-II (1)

CIRCULAR MEMORANDUM No F 6/47 DATED 26TH APRIL 1947 FROM
THE SECRETARY, COMMITTEE ON INDIGENOUS SYSTEMS OF
MEDICINE, FORWARDING THE QUESTIONNAIRE

The Government of India have appointed the Committee on Indigenous Systems of Medicine to consider and recommend the steps that should be taken to improve the facilities for research and training in indigenous systems of medicine and generally to increase their usefulness to the public. The Committee has been asked to make recommendations in regard to the following —

- (i) the provision that should be made for research in and the application of scientific methods for the investigation of the indigenous systems of medicine such as Ayurvedic and Unani Tibbi, with reference to maintenance of health and the prevention and cure of disease,
- (ii) the measures to be taken to improve facilities for training in Indian systems of medicine
- (iii) the desirability of State control of the practice of these systems of medicine and
- (iv) the other measures to be taken to increase the usefulness of the systems to the public as part of a comprehensive plan

2. The Committee desire to have the views of Provincial and State Governments, associations, institutions and persons interested in the Indigenous Systems of Medicine. With a view to elucidate the different aspects of this question the Committee have drawn up the following questionnaires —

- (i) for Provincial Governments and Indian States,
- (ii) for colleges, schools and research institutions
- (iii) for practitioners of the indigenous and the Western systems of medicine, and
- (iv) for indigenous Shaukhana

3. A copy of the relevant questionnaire is attached herewith and it is requested that a reply be sent by the 15th July 1947.

G D SONDHJI,
*Secretary to the Committee on
Indigenous Systems of Medicine*

APPENDIX A II (2)

QUESTIONNAIRE I

FOR PROVINCIAL GOVERNMENTS, LOCAL ADMINISTRATIONS AND
INDIAN STATES

NOTES—(i) Throughout the Questionnaire relates to the two indigenous systems of medicine only —

1. The Ayurvedic (including Siddha)
2. The Unani Tibbi

- (ii) If the space allotted for replies is insufficient kindly write on separate sheets and attach
- (iii) Kindly return questionnaire duly filled by 15th July 1947
- (iv) Answers relating to each system may kindly be given on separate questionnaire forms

Questionnaire 1—Contd.

QUESTIONS

ANSWERS

1 Please state to which system 1
your answers refer.

HOSPITALS AND DISPENSARIES

2 Number maintained by — 2.

(a) Government	...	(b)
----------------	-----	-----

(b) Local Bodies ... (b)

(c) Private Agencies .. (c)

3. (a) The average staff in — . . . 3 (a)

(b) Minimum qualifications prescribed for the staff —	(b)
---	-----

(c) Number qualified (c)

(d) Number un-qualified . . . (d)

4. Number of patients treated in all dispensaries and hospitals practising the system —

(a) In patients ... (a)

(b) Out patients	(b)

(c) Average cost of treatment per case	(c)
--	-----

(1) In patient	..	(1)
----------------	----	-----

(ii) Out patient .. (iii)

5. Number of patients treated according to the following categories —

(i) Medical	...	(i)
-------------	-----	-----

(ii) Surgical	(ii)
---------------	------

(iii) Maternity and gynaecological	(iii)
------------------------------------	-------

Questionnaire No 1—Contd

QUESTIONS

ANSWERS

6 (a) How do the institutions under Government get their medical preparations?

6 (a)

(b) Are these prepared separately in each dispensary or are they supplied from a Central Organisation?

(b)

(c) Are these preparations standardised so as to ensure uniformity of composition in the drugs used in all dispensaries?

(c)

7 What State control and management does the Government propose for —

7

(a) ensuring genuineness of the raw materials sold

(a)

(b) laying down and maintaining certain standards with regard to the composition of indigenous preparations manufactured and marketed by various agencies?

(b)

COLLEGES AND SCHOOLS

	Colleges	Schools	Research Institutions
8 (a) Number maintained by —	8 (a)		
(i) Government	(i)		
(ii) Local Bodies	(ii)		
(iii) Private Agencies	(iii)		
(b) Total expenditure on (a) above by Government for the years —	(b)		
(i) 1944-45	(i)		
(ii) 1945-46	(ii)		

Questionnaire I—*contd*

QUESTIONS

ANSWERS

	ANSWERS		
	Medicines	Staff	Maintenance
(c) Expenditure on Government Colleges and Schools for the years —	(c)		
(i) 1944-45	(i)		
(ii) 1945-46	(ii)		
(d) Name, location, staff with their qualifications in all Institutions and Government grants made to them	(d) Please answer on form A 'at tached herewith		

GENERAL PRACTITIONERS

9 The number of practitioners of the system —	9
(a) Registered	(a)
(b) Un Registered (approx)	(b)
(c) With diplomas of recognised teaching institutions	(c)
(d) Without any diplomas	(d)
(e) Do the registered practitioners enjoy the same privileges as practitioners of the Western system ?	(e)

GENERAL

10 What is the policy of the Govt regarding —	10
(a) Teaching	(a)
(b) Practice	(b)
(c) Popularising of these systems?	(c)
11 Any characteristics of these systems which in the opinion of the Government specially commend them to the public ?	11
12 Can the Government suggest any measures to increase the usefulness of these systems ?	12

Questionnaire I—Contd

QUESTIONS

ANSWERS

- | | | |
|----|--|----|
| 13 | Can these systems be made part of a comprehensive scheme of medical relief curative and preventive? | 13 |
| 14 | How can the existing Vaidyas and Hakims be utilised, as an immediate measure, in any composite scheme of health services in rural areas? | 14 |

FORM 'A'

ANSWER TO QUESTIONNAIRE I Question 8 (d)

LIST OF COLLEGES, SCHOOLS AND RESEARCH INSTITUTIONS, ETC

***AYURVEDIC UNANI TIBBI**

(*Delete system not applicable)

Name, particulars of institution and full postal address	Whether run by (i) Govt (ii) Local Body or (iii) Private Agency	Teaching Staff			Govt grants for	
		Minimum qualifi- cation	Number		1944-45	1945-46
			qualified	Un- qualified		

QUESTIONNAIRE II

FOR COLLEGES, SCHOOLS AND RESEARCH INSTITUTIONS

Notes —(i) Throughout in the questionnaire reference is to the two Indigenous Systems of medicine viz —

(1) *Ayurvedic (including Siddha)*

(2) *Unani Tibbi*

(ii) If the space allotted for replies is insufficient kindly write on separate sheets and attach

(iii) Kindly return questionnaire filled by 15th July 1947 to the Secretary, Committee on Indigenous Systems of Medicine, P B No 25, Delhi

(iv) If both Ayurvedic and Unani Tibbi Systems are taught in the institution, then answers relating to each system may kindly be given on separate questionnaire forms

—o—

QUESTIONS

ANSWERS

1 Please state to which system your answers refer 1

INSTITUTION (EDUCATIONAL) 2 (IN BLOCK CAPITALS)

2. (a) Name (a)

(b) Full Postal Address (b)

(c) Date of establishment (c)

3. (a) What is the curriculum 3 (a)

(i) Pre-clinical (i)

(ii) Clinical (ii)

Please supply a copy of the prospectus and annual reports for the last two years

(b) Have you got the necessary text-books?

(c) Are the text books in English or other languages? (c)
(Specify language)

(d) If suitable text books are not available what suggestions do you make for producing them? (d)

(e) Do you favour the use of provincial languages as media of instruction? (e)

(f) What is the— (f)

(i) length of course (i)

(ii) basic qualification for admission (ii)

(g) Do you suggest any improvements? (g)

STAFF

4 What is the strength of the staff and their qualifications? 4.

Questionnaire II—Contd

QUESTIONS		ANSWERS	
STUDENTS		1944-45	1945-46
5	What was the—	5	
	(a) Number of new admissions	(a)	
	(b) Total number of students	(b)	
	(c) Number actually qualified	(c)	
II HOSPITALS			
6	Is there a hospital attached? If so give the number of beds	6	
		1944-45	1945-46
7	(a) Number of patients treated	7 (a)	
	(i) In patients	(i)	
	(ii) Out patients	(ii)	
	(b) Number of patients treated according to the following categories	(b)	
	(i) Medical	(i)	
	(ii) Surgical	(ii)	
	(iii) Maternity & gynaecological	(iii)	
8	What is the number of	8	
	(i) Nurses	(i)	
	(ii) <i>Dhais</i>	(ii)	
9	Is there a manufacturing Pharmacy? If so are the medicines manufactured according to a recognised Pharmacopoeia? Please send a copy of the Pharmacopoeia	9	
10	Are the following subjects as recently developed being taught	10	
	(a) Anatomy	(a)	
	(b) Physiology	(b)	
	(c) Pathology	(c)	
	(d) Surgery	(d)	
	(e) Midwifery	(e)	
	(f) Gynaecology	(f)	
	(g) Public Health	(g)	
	(h) Hygiene	(h)	

If not, are you in favour of their inclusion?

Questionnaire II—Contd

QUESTIONS

ANSWERS

RESEARCH

- 11 (a) Is there any Post graduate training? If so, is any research being carried out? 11 (a)
- (b) Is the research being carried out on modern scientific lines (chemical and pharmacological) or on any other lines? If the latter give full details (b)

Copies of any such research may kindly be supplied

FINANCE

- 12 (a) Sources of Income 12. (a)
- (b) Average income per annum (b)
- (c) Average expenditure per annum (c)

III. GENERAL

- 13 What characteristics of your system specially commend it to the general public? 13
- 14 What are the special features of your system which give it a distinctive and pre eminent value from the point of view of the health of the community? 14
- 15 What measures can you suggest to increase the usefulness of your system of medicine? 15
- 16 How can the measures suggested be made part of a comprehensive plan of medical relief? 16
- 17 Are you in favour of any control over the teaching and practice of Indigenous Systems of Medicine on the lines of the control by the Indian Medical Council? 17
- 18 How can the existing Vaidyas and Hakims be utilised as an immediate measure in any composite scheme of health services in rural areas? 18
- 19 Are you in favour of evolving one system of medicine in India by a process of fusion of the Ayurvedic, Unani and the Western Systems? If so, what are your proposals? 19
- 20 Should the students of allopathic medicine be taught the indigenous systems of medicine? If so at what stage of their studies? 20

Questionnaire II—Contd

QUESTIONS

ANSWERS

- 21 (a) What measures can be taken to improve the facilities for training in Indian systems of medicine
- (b) Should there be a uniform standard of teaching and examination of your system all over India?
- 21 (c) Considering the difficulties of getting authentic specimens of drugs would you suggest the compilation of a Pharmacopoeia on the lines of the British Pharmacopoeia? If so how would you do it?

Questionnaire No III

FOR PRACTITIONERS OF AYURVEDIC UNANI TIBBI AND WESTERN SYSTEMS OF MEDICINE*

- Notes —(i) If the space allotted for replies is insufficient kindly write on separate sheets and attach
- (ii) Kindly return questionnaire duly filled to the Secretary Committee on Indigenous Systems of Medicine by 15th July 1947
- * Delete system not applicable
- (iii) Full name (in Block capitals and postal address

QUESTIONS

ANSWERS

- 1 What are the characteristics of the indigenous systems which specially commend them to the people?
- 2 What are the special features of the indigenous systems which give them a distinctive and pre eminent value from the point of view of the health of the community?
- 3 Any special research on indigenous systems which you have carried out Please supply copies of your research publications
- 4 In addition to physical examination are any laboratory tests or technique peculiar to the indigenous systems used by you?
- 5 Are you in favour of any control over the teaching and practice of the Indigenous Medicine on the lines of the control by the Indian Medical Council?
- 6 What measures would you suggest to increase the usefulness of the indigenous systems?

Questionnaire III--*Contd*

QUESTIONS

ANSWERS

- 7 How can the measures suggested be made part of a comprehensive plan of medical relief? 7
- 8 How can the existing Vaidyas and Hakims be utilised as an immediate measure, in any composite scheme of health service in rural areas? 8
- 9 What measures can be taken to improve the facilities for training in indigenous systems of medicine? 9
- Should there be a uniform standard of teaching and examination of these systems all over India?
- 10 Should the students of the Western medicine be taught the indigenous system of medicine? If so at what stage of their studies? 10
- 11 Are you in favour of evolving one system of medicine in India by a process of fusion of the Ayurvedic, Unani and the Western Systems? If so, what are your proposals? 11

Questionnaire No IV (d)

FOR PRIVATE DAWAKHANS—UNANI TIBBI AND AYURVEDIC

Notes—(i) If the space allotted for replies is insufficient please write on separate sheets and attach

(ii) kindly return questionnaire filled by 15th July 1947 to the Secretary Committee on Indigenous Systems of Medicine 1 B No 25, Delhi

(iii) Throughout in the questionnaire reference is made to the two indigenous systems of medicine viz—

(a) Ayurvedic (including Siddha)

(b) Unani Tibbi

(iv) If medicines of both Ayurvedic and Unani Tibbi are dispensed in the dawakhana then answers relating to each system may kindly be given on separate questionnaire forms

1 Please state to which system your answers refer 1

2 Name and full postal address of the Dawakhana 2

PREPARATION OF COMPOUND MEDICINES

- 3 (a) Are compound medicines prepared according to some indigenous pharmacopoeia? If so, please name it. A printed copy of it may also be sent 3 (a)

Questionnaire IV—*Contd.*

- (b) Is the preparation of medicines duly supervised in order to see that the ingredients are mixed properly and in the right manner? If so, what is the system of supervision? (b)
- (c) Are costly medicines prepared under the supervision of a competent person who certifies the right proportion in the preparation? (c)
- (d) Is the method of preparation an orthodox one or according to some recent modifications? (d)
- (e) How do you guarantee correct weights in dispensing the prescribed medicines? (e)
- (f) What measures do you adopt to dispose of medicines which have lost their efficacy? (f)

Questionnaire No IV (a)

FOR PHARMACIES OF INDIGENOUS MEDICINE

Preparation of Compound Medicines

- 1 (a) Are compound medicines prepared according to some Indigenous Pharmacopoeia? If so please name it. A printed copy of it may also be sent.
- (b) Is the preparation of medicines duly supervised in order to see that the ingredients are mixed properly and in the right manner? If so, what is the system of supervision?
- (c) Are costly medicines prepared under the supervision of a competent person who certifies the right proportion in the preparation?
- (d) Is the method of preparation an orthodox one or according to some recent modifications?
- (e) How do you guarantee correct weights in dispensing the prescribed medicines?
- (f) What measures do you adopt to dispose of medicines which have lost their efficacy?

General

- 2 What difficulties do you experience from the following causes
- (a) In obtaining Indigenous raw materials of standard quality?
- (b) Due to Customs and Excise regulations
- (c) In connection with any other factors in the drug manufacturing trade
- 3 What arrangements have you for the control of preparations which cannot be standardized chemically?
- 4 What arrangements have you for the analytical control of such material and the finished products you manufacture?
- 5 State the names and qualifications of all chemists, or those who are entrusted with the preparation of medicines, you employ
- 6 How many employees have you in the factory and laboratories?
- 7 Do you think samples of raw materials and finished products should be examined at a Central Laboratory?

- 8 Do you consider that control of therapeutic agents of Indigenous medicines on the lines enacted in such countries as Great Britain, United States of America etc, is desirable in this country?
- 9 If not, what other suggestions have you to put forward to ensure the purity and activity of all medicinal substances manufactured or imported?
- 10 What is your opinion regarding standardization of various preparations made from drugs used in the indigenous medicines, apart from those manufactured by your firm on the Indian market?
- 11 Are you aware of any cases where such preparations were proved to be inactive or harmful? Do you think it is possible to control them in the same way as the Pharmacopoeial preparations of Western system of medicine?
- 12 What is your opinion regarding the increasing sale of proprietary remedies of Indigenous medicine particularly those with secret formulae, on the Indian market? What control in your opinion should be exercised over them?
- 13 What personal experience have you of adulteration or inferior quality in medicinal preparations? Please give details —

(a) Shastrie preparations

(b) Proprietary preparations

Please furnish list of preparations prepared by you according to the following categories —

- 1 Single Drugs
 - 2 Compound Preparations—Vegetable Origin
 - 3 Minerals and Metallic preparations
-

APPENDIX A-III (1)

LIST OF PERSONS WHO GAVE EVIDENCE BEFORE THE COMMITTEE.

NEW DELHI.

Serial No.	Name	Place
1.	Dr. Jivraj N. Mehta, M.D., Director-General, Health Services, Government of India.	New Delhi
2.	„ S. C. Sen.	„
3.	Hakim Mohd. Kamil Khan Sahib.	Delhi
4.	„ B. N. Sharma.	New Delhi
5.	Rajavaidya Sudhanwa Vidyalankar.	„
6.	Kaviraj Madan Mohan Chopra.	Delhi
7.	„ Khazan Chand, B.A.	„
8.	„ Ashutosh Mazumdar, F.A.I.M., Bhishagacharya, Dhanwantry, Professor, Tibbia College.	New Delhi
9.	Vaidya Des Rajji, Ayurvedacharya.	„
10.	„ Guru Datt Ji, M.Sc.	„
11.	Pandit Nand Nath Ji.	„

ALIGARH.

12.	Dr. Inayatullah Shah, M.B.B.S., Tibbia College.	Aligarh
13.	„ I.H. Ansari, Tibbia College.	„
14.	„ M. S. Rahman, Tibbia College.	„
15.	Shifa-ul-Mulk Hakim Abdul Latif, Vice-Principal, Tibbia College.	„
16.	Hakim Mohd. Zahir-Ud-Din Khan Tibbia College.	„
17.	„ Ahmad Ali Sufi, Tibbia College.	„
18.	„ Zargham Ali Khan, Tibbia College.	„
19.	„ Anwarul Hassan, Tibbia College.	„
20.	„ Mohd. Ahmad Kahiri	„
21.	„ Zhabbir Ahmad Khan Sherwani.	„
22.	„ Mohd. Swaleh Khan Sherwani.	„
23.	„ Mohd. Inamullah Qadri.	„
24.	„ Siddiq Ahmad.	„
25.	„ Mohd. Hanif Khan.	„

20 COMMITTEE ON INDIGINOUS SYSTEMS OF MEDICINE

- 26 Hakim Mohd Ahmad Khan Asifabadi Aligarh
27 , Wasi Ahmad "

LUCKNOW.

- 28 Dr J D Sharma, Mulchand Rustogi
Ayurvedic College Lucknow
29 , A C Bannerjee, Director of Medi-
cal and Health Services, U P
30 Hakim Abdul Habib Sahel, Joint
Secretary, Mambaul Tibbia
College
31 Abdul Hasiq M A C, Principal
Takmilul Tibbia College ,
32 , Mohd Amin, State aided Unani
College "
33 Mr Sahid Raza, Joint Secretary,
Mambaul Tibbia College
34 Vaidya Ram Sevak Misra, A M C,
Kanya Kubja Ayurvedic College
35 , Madan Gopal Fyzabad
36 , J N Bahuguna Acharya
Ayurvedic Mahavidyalaya Dehra Dun
37 , Pandit Sitawar Pant Ayur-
ved Shastrachari President
U P Provincial Vaidya
Sammelan Nainital

BENARES

- 38 Dr B G Ghanekar, M B B S, Benares Hindu
University
Ayurvedic College
39 Pandit Brij Mohan Dikshit
40 Vaidyaratna Kaviraj Pratap Sinha
41 Vaidya Daljit Singh
42 Kulkarni, M A,
43 V K Patwardhan
44 Acharya Shiv Dutta Shukla Lecturer
B H U Ayurvedic College
Member Board of Indian
Medicine Benares
45 Hakim Altafur Rehman
46 Shri Dhulekar Chairman Board of
Indian Medicine Jhansi (U P)
47 Shardan Chand Shukla Inspector
of Ayurveda Benares

48.	Vaidya Yadhunandhan Parshad Upadhyaya.	Benares Hindu University Ayurvedic College.
49.	„ Puran Chand Jain.	„
50.	„ B.B. Khare, i/c Eye Dept.	„
51.	„ Ganga Sahai Pande, Ayurvedacharya, Secretary, Benares Hindu University Graduates' Association.	Benares
52.	„ R. C. Shukla, A.M.S.	Benares Hindu University.
53.	„ Ram Sewak Misra, Vice-Principal, K. K. College.	Lucknow
54.	„ Ram Sushil Singh	Raipur (Dist. Mirzapur.)

PATNA.

55.	Shifa-ul-Mulk Hakim Syed Muzahir Ahmed Sahele	Patna
56.	Hakim Mohd. Idris Sahib, Principal, Government Tibbia College.	„
57.	„ Akiur Rehman Sahib.	„
58.	„ Abdus Bhakoor Saheb, Government Tibbia College	„
59.	„ Abdul Abid Sahib, Professor, Government Tibbia College.	„
60.	Inspector-General, Civil Hospitals, Government of Bihar.	„
61.	Dr. J. N. Misra	„
62.	Vaidya Ram Rakshak Pathak, Principal, Ayurvedic College, Begasara,	Monghyr
63.	„ Pandit Ram Dev Sharma, Professor, Government Ayurvedic College.	Patna
64.	„ Babu Sukh Ram Prasad, B.Sc., Ayurvedacharya, Professor, Government Ayurvedic College.	„
65.	„ Preyavart Sharma, Vice-Principal, Ayudhia Shiv Kumari College.	Monghyr
66.	„ Kapil Deo Sharma, Editor, Swasthya Sandesh.	Patna
67.	Kaviraj Brij Bhushan Sen, Senior Professor, Government Ayurvedic College.	„

- 68 Pandit Kalika Misra, President, Provincial Vaid Conference , Bihar
- 69 , Nand Kishore Misra, Secretary, Provincial Vaid Conference and Ayurvedic Graduates Association " "
- 70 „ Bhairav Giri, Professor, Dhenu swan Ayurvedic College Muzaffarpur
- 71 , Ram Narayan Sharma, Proprietor Vaidnath Ayurveda Bhawan Patna
- 72 Kaviraj Manmatha Nath Bandopadya ya, Secretary, Jatindra Narayan Ayurvedic College Bhagalpur
- 73 , H N Chaturvedi Principal Government Ayurvedic College and Hony Supdt Indigenous Medicine, Bihar Government

CALCUTTA

- 74 Dr M N Moitra Calcutta
- 75 „ R B Lall Professor of Epidemiology and Public Health
- 76 , M N De, M B M R C P., Professor of Medicine, Medical College
- 77 Indu Bhushan Roy, Viswanath Ayurvedic Mahavidalaya
- 78 , Harendra Chowdry Hooghly
- 79 „ J N Maitra, M B Calcutta
- 80 , Chatterji, M B , D T M Ph D
- 81 R Sinha, Secretary, Calcutta Branch of the Indian Medical Association
- 82 P K Guha, Hony General Secretary, Indian Medical Association „
- 83 K K Sen Gupta Leader of the I M A Delegation
- 84 A K Sen Deputy Leader of the I M A Delegation ,
- 85 Baman Das Mukherjee M R C O G (Lond) „

86.	Kaviraj Nalini Ranjan Sen, Ashtanga . Ayurved Vidyalyaya.	Calcutta
87.	„ Amar Bhushan Roy.	„
88.	„ Premanand Sharma.	„
89.	„ Jagesh Chandra Datta Sharma.	Chittagong
90.	„ Jatindra Mohan Das Gupta.	Calcutta
91.	„ M. N. Moitra.	„
92.	„ Sachindra Nath Chatterjee, Prof., Viswanath Ayurvedic Mahavidyalaya.	„
93.	„ Provash Chandra Sen, M.B., Vice-Principal, Vishwanath Ayurvedic Mahavidyalaya and Hospital.	„
94.	„ Murari Mohan Ghose, A.M.D., Supdt., M.O.(G.S.) College and Hospital and Ayurvedic Sanskrit Parishad.	„
95.	„ Hiranbanath Bhattacharjee, Professor, Govinda Sundari Ayurvedic College and Hospital.	„
96.	„ Tara Charan Tarkadarshan- Tirtha.	„
97.	„ Rakhal Das Sen.	„
98.	„ Indu Bhushan Sen.	„
99.	„ Bibhuti Bhusan Biswas, Maha- raja Cossimbazar Govinda Sundari Ayurvedic College and Hospital.	„
100.	„ Promothanath Sanyal Sashtri	„
101.	„ Hari Gopal Chatterjee.	Chinsura
102.	„ Nakul Chandra Sen.	Calcutta
103.	„ V. K. Bhattacharya, Ex-General Secretary, All-India Ayur- vedic Congress.	„
104.	„ Birenda Kumar Mallick.	Burdwan
105.	„ Hanuman Parshad Agarwal.	Calcutta
106.	„ Ram Chandra Misra.	„
107.	„ Shree Narayan Sharma.	„
108.	„ Nand Lall Hakim.	„
109.	„ Girija Shankar Bhattacharya.	„
110.	„ Bawlal Majumdar.	„

111	Kaviraj M I Das Gupta	Calcutta
112	Bireswar Sen	
113	Ramanirajan Bhattacharya	
114	Dev Dev Bhattacharya	
115	Rambhadra Roy	
116	Jadavendra Kumar Roy	
117	Lalit Mohan Misra	
118	Sushil Kumar Sen Gupta	
119	Sachundra Nath Gupta M A	
120	Raja Rai	
121	Subosh Chandra Roy	
122	Ram Krishna Shastri Shya madas Vaidyashastra Pith	
123	Rajavaidya Kaviraj Bagala Kumar Mazumdar M A Ayurveda charya Founder and Direc tor Ayurveda Bignan Parishad	
124	Kaviraj Atul Behari Dutt M A	
125	Parimal Kumar Sen Gupta	
126	Keshov Nath Chatterjee Ayurved Bhusan	
127	Mulh Ram Joshi Shree Satya Narayan Datt via Dispensary	
128	Amola Charan Sen	
129	Dharani Dhar Sastri	
130	Sunder Lal Sharma Ayurveda charya	
131	Amulya Chandra Nandi	
132	, Arun Kumar Gupta	
133	Hridoy Bhushan Gupta	
134	Taranga Bhusan Das Gupta Secretary State Faculty of Ayurvedic Medicine Bengal	
135	Shivakohaji Joshi Thirtha charya	
136	Nand Lal Ji Hakim Bhishga charya	
137	Keshav Dev Ji	
138	Notiramji Vaidyara	
139	Ram Chandra Ji Mishra Bhi shgacharya	
140	Raja Ram Ji Shastri Tiwari	

141. Kaviraj Sunder Lal Ji, Ayurvedacharya. Calcutta
 142. „ Vrajnatha Ji Mishra, Vaidyaraj. „
 143. „ Madhava Prasad Ji Agarwal. „
 144. „ Khitti Mohan Das Sen, Santi-
 niketan (Bhirbhum). Bolpur
 145. Pranacharya, Kaviraj Susil Kumar-
 Sen, M. Sc., Principal and
 Supdt., Viswanath Ayurvedic
 Mahavidyalaya and Hospital. Calcutta
 146. Raj Vaidya Prabhat Chatterji, M.A.,
 Institute of Hindu Chemistry
 of Ayurvedic Research. „
 147. Sri S K. Chakrabarthy, Professor of
 Sanskrit College. „

NAGPUR.

148. Lt -Col. A. S. Garewal, I. M. S., Inspec-
 tor-General of Civil Hospitals,
 C.P. & Berar. Nagpur
 149. „ A N. Bose, Principal, Medical
 College. „
 150. Dr M. R. Cholkar, Indian Medical
 Association. „
 151. Vaidya B. V. Degwekar, M A., M.Sc., LL.D., Jubbulpore
 152. „ G. S. Misra. Nagpur
 153. „ Purshottam Shastri Hirelekar. Amraoti (Berar)
 154. „ Harishastri Paradkar. Akola (Berar)
 155. Mr. Sharma, Inspector of Ayurvedic &
 Unani Institutions C.P. & Berar Nagpur

VIZAGAPATAM

156. Dr. C. R. Reddi, Vice-Chancellor,
 Andhra University. Vizagapatam
 157. „ T. K. Raman, Professor of Medicine,
 Andhra Medical College „
 158. „ V Isvariah, Professor of Pharma-
 cology, Andhra Medical College. „
 159. „ T. Bhaskara Menon, Principal &
 Professor of Pathology, Andhra
 Medical College. „

MADRAS.

160. Rao Bahadur Dr. B. Tirumal Rao,
 M.B.B.S., F.R.C.S., Retired
 Professor (E. N. T.), Andhra
 Medical College. Madras

161	Rao Bahadur Dr T. S. Tirumurthi, B A, M B C M, D T M & H, Ex- President, Indian Medical Association	Madras
162	Dr M V Krishna Rao, M B B S, President, Andhra Branch, Indian Medical Association and Member, Working Com- mittee	"
163	„ Ramamurthi, F R O S	,
164	„ M Parankusam, L M S, & F I M, Principal, Govt College of Indian Medicine	"
165	„ V Narayanaswamy, Represent- ative of the Academy of Indian Medicine	"
166	„ Y Kondal Rao, L I M, Represen- tative of the I I M Associa- tion	,
167	„ A Subramaniam, L I M, Member, Central Board of Indian Medicine	,
168.	„ P Kutumbiah, M D M R C P Re- presentative of Indian Medi- cal Association, Stanley Medical College	
169	„ P. A S Raghavan, L M F, (Madras), D M R (Vienna), Representative of Indian Medical Association	Trichinopoly
170	„ C Somasundaram, L I M, Re- presentative of Tamil Nad Siddha Vaidya Sangham	Puvalur
171	„ D V Subba Reddy, Professor of Physiology, Medical College	Madras
172	„ A M J Shirazi	"
173	„ U Rama Rao	
174	„ K Raghavan, L I M	
175	Ayurvedacharya N Madhava Menon, Retd Lecturer, Govt School of Indian Medicine	,
176	„ V B Nataraja Shastri, Presi- dent, Dravida Vaidya Mandal	Trichinopoly

- | | | |
|------|---|----------------------------|
| 177. | Sri K. Balasubramania Iyer, B.A., B.L.,
Secretary, Sri Vankata-
ramana Ayurvedic Pata-
shala. | Madras |
| 178. | „ E. Krishnaswamy Naicker, Re-
presentative of Tamil Nad
Siddha Vaidya Sangham. | Puvalur, Trichi-
nopoly |
| 179. | Dr. T. V. Radhakrishna Shastri,
M.A., L.I.M. | Madras |
| 180. | Shri G. A. Chinnu, Hony. President,
All-India Siddha Vaidya
Sangham. | Madura |
| 181. | Hakim Hafiz Mohd. Abdus Shakur
Sahib, L.I.M. | Madras |
| 182. | „ Syed Mohideen Ahmed Sahib. | „ |
| 183. | Shifa-ul-Mulk Haji Hakim Syed
Maqdom Ashraf Sahib. | „ |
| 184. | Sri C. Narayanaswamy Naidu, Special
Officer for the Reorganisa-
tion of the Department of
Indian Medicine, Govern-
ment of Madras | „ |

TRAVANCORE STATE

- | | | |
|------|---|--------------------------------------|
| 185 | Dr. L. A. Ravi Varma, Hony. Direc-
tor of Ayurveda and Princi-
pal, Government Ayurvedic
College | Trivandrum |
| 186. | „ K. Raman Thampi, Retired
Chief Inspecting Medical
Officer. | „ |
| 187. | „ C. C. Karunakaran, Representa-
tive of Modern Medicine in
the Travancore Medical
Council. | „ |
| 188. | Vaidyan V. P. Kunjan Pillai. | „ |
| 189 | „ V. N. Damodaran Nair. | „ |
| 190 | „ K. G. Gopala Pillai, Kalpa-
drumam Ayurvedic Works | Sasthaman-
galam.
(Travancore) |

28 COMMITTEE ON INDIGENOUS SYSTEMS OF MEDICINE

191	Vaidyan Vedaikannan	Trivandrum
192	„ C R Ayyappan	„
193	„ M N Kesava Pillai, Senior Pandit, Government Ayur- veda College	„
194	„ K Parameswaran Pillai, Asst Pandit, Government Ayur- veda College	„
195	„ P Parameswaran Pillai, Chief Vaidyan, Government Ayur veda Hospital	„
196	„ K Rama Krishna Iyer, Assist ant Pandit, Government Ayurveda College	„
197	„ P K Keasvan, Member, Ayur veda Examination Board	„
198	„ K P Sankaran Pillai, M A, Ex Principal, Ayurveda Col lege	„
199	Mr R N Nayak, Ayurvedic Com pound Tinctures Ltd	Allepey
200	Vaidyan K N Kesava Pillai Asst Pandit, Government Ayur- veda College	Trivandrum
201	„ A P Sankaran Pillai, Assistant Pandit, Ayurveda College	„
202	„ V Bhargavan, Asst Pandit Government Ayurveda College	„
203	Miss P Lakshmi Amma, Acting Chief Vaidyan Government Ayurveda Hospital	„
204	Vaidyan N Nilacanta Pillai, Retired Inspector of Ayurveda and Ex Principal Government Ayurveda College	„
205	Capt S Christian, Retired Chief Inspecting Medical Officer	„
206	Rajasevanirata Dr M K Gopala Pillai, Director of Public Health	„
207	Vaidyan P Vasudevan Pillai, Inspector of Ayurveda	„

208. Brahmasri N. S. Moose, Member of
Hereditary Ashta v a i d y a
Family Vyaskara. Kottayam
209. Ashtavaidyan Eravipurathu Madhava,
Hereditary Vaidya. Trivandrum

COCHIN STATE.

210. Dr. T. Verghese, Chief Medical Officer. Ernakulam
211. „ V. K. G. Menon, L.M.S., F.A.I.M.,
Director of Indian Medicine. „
212. Sri T. A. S. Nambeesan. „
213. „ R. S. Kamath, Government Ayur-
vedic Hospital. „
214. „ M. K. Vaidyar. Tellicherry
215. „ P. Vasudevan Nambeesan. Trichur
216. „ T. Achutha Warriar. Tripunithur
217. „ K. Kalakanta Menon, Hereditary
Vaidya. „
218. Vaidya Guru M. R. Bhat. S. Kanara
219. Brahmasri Aryan Narayan Moose,
Hereditary Vaidya. Kottayam.

MYSORE STATE.

220. Mr. A. Nirvane Gowda, Chairman of
the Committee of Indigenous
Systems of Medicine and
Secretary to Government
Medical and Education
Department, Government of
Mysore State. Bangalore
221. Dr C. Dwaraka Nath, L.I.M., Z. T.
(Hamburg Varsity) Research
Officer, Sri Jayachama-
rajendra Institute of Indian
Medicine.
222. „ N. Gundappa, L.M.P., L.A.M.S.,
(Mysore), President, Ayur-
veda and Unani Graduates'
Association.
223. „ Subba Rao, M.B.C.M. (Madras),
M.R.C.S., L.R.C.P., D.P.H.,
Retired Senior Surgeon,
Government of Mysore.

224	Dr N. Mahadeva Sastri, L A M S, Medical Officer, Ayurvedic Dispensary, Government Electric Factory	Bangalore
225	„ V V Monterio M B N S, F R C P S (Glasgow), D S (Eng), Senior Surgeon Government of Mysore	„
226	Ayurveda Vidwan Dr S Sitarama Shastri, M B N S, Medical Officer i/c Sri Jayachama rajendra Institute of Indian Medicine	„
227	„ Vidwan Dr N Lakshmi narayan, M A M S & L M F (Cal)	„
228	Ayurvedacharya Sri K N Rama Iyer, i/c of Ayurveda Phar- macy, Sri Jayachama- rajendra Institute of Indian Medicine	„
229	Hakim Meer Ghose Ex-Senior Physi- cian, Mysore Govt Ayur- vedic and Unani College	„
230	Vaidya Guru D K Bharadwaj	„
231	Hakim Murtaza Khan, Senior Physi- cian, Unani Section, Sri Jaya- chamarajendra Institute of Indian Medicine	„
232	Kaviraj Subban Singh	„
233	Mr P V Narasingha Rao, M A, (Hons), President, Mysore Ayurvedic Congress	„
234	Sri K N Chandu, Vaidya	„
235	Prof K V Iyer, Physical Culture, Correspondence School and Vyayamasala	„
236	Mrs G Sumati Taranath, B A L T, Vaidya Guru, Mahopadhy- aya, President, Karnatak Provincial Ayurved Mandal	„
237.	Sri K N Bhattacharya, Secretary, Ayurveda Sevasamithi	„

MYSORE.

- | | | | |
|------|-----|--|-----------|
| 238. | Dr. | B. T. Krishnan, M.B.B.S., Principal,
Mysore Medical College. | Mysore |
| 239. | " | E. Ananta Rao, Professor of Hy-
giene, Mysore Medical Col-
lege and Health Officer,
Mysore. | " |
| 240. | " | M. Ramachandran, M.B.B.S., F.I.M.
(Madras), Principal, Govern-
ment Ayurvedic and Unani
College. | " |
| 241. | " | T. K. Lakshmi Narasimhayya,
L.A.M.S. | " |
| 242. | " | J. S. Krishnamurthi, M.B.B.S. | " |
| 243. | " | A. S. Dathu Rao, Representative
of Indian Medical Association. | " |
| 244. | | Hakim Zainul Abdin, Senior Profes-
sor, (Unani), Government
Ayurvedic and Unani College. | " |
| 245. | " | Syed Ghouse Mohiyuddin,
Government Ayurvedic and
Unani College. | " |
| 246. | | Vaidya Vallaba Sri. M. G. Singar
Iyengar. | " |
| 247. | | Rajvaidya C. Chandra Bhan Singh. | " |
| 248. | | Vaidya Partha Narayan Pandit,
Abhaya Ayurvedic Research
Institute. | " |
| 249. | " | B. V. Pandit, Ayurveda Vid-
wan. | Nanjangud |
| 250. | | Ayurveda Vidwan N. S. Subramanya-
Sastry, L.M.P., L.A.M.S.
(Mysore.) | Mysore |
| 251. | Mr. | P. Sitaramaiah, President, Muni-
cipal Council. | " |
| 252. | " | N. S. Hirannayya, Commissioner,
Municipal Council, Mysore
and Vice-president, Ayurvedic
and Unani College Committee
of Management. | " |
| 253. | | Sri. Swami V. N. Bharathi, Hereditary
Physician. | " |

HYDERABAD STATE

254	Moulvi Hakim Syed Fazal-ur-Rehman, Vice-Principal, Nizamia Tibbi College	Hyderabad
255	Hakim Ilyasin, Prof, N T College and Resident Medical Officer, Nizamia Unani Shifakhana	"
256.	" Moulvi Abde-Ali, Prof, N T College, i/c. Unani Pharmacy	"
257	" Moulvi Mohammad Ali, Unani Pharmacy, Deputy Director, Unani Department	"
258	" Syed Ali Hussain, Asst Direc- tor, Unani Department	"
259	Vaid Hakim Shanker Parshad, Secre- tary, Ayurvedic Advisory Board, H E H the Nizam's Government.	"
260	" Parmeshwari Prashad, Ayurveda Visharad, Superintendent, Government Ayurvedic Dispensary	"
261	" Ram Niwas Sharma, Ayurved Visharad, Lecturer, Ayur- vedic College	"
262	" R N Metha	"
263	" Vishwanath Kesari	"
264	" Jayawant D Moray	"
265	" Ramachandra Vyas	"
266	" Digumber Rao Saman Goukar	"
267	" Kanlaker Indapurker	"
268	" Dattatreya Nagorao Kulkarni	"
269	" Keval Ram Gupta	"
270	" Pandit Venkat Rao Dattareya Swami Govind Thirth, Vaidya Visharad	"
271	Vaidya Narhar Reddy, Ayurvedic Visharad	Secunderabad (Dn)
272.	Pandit Gaya Parshad Sashtri, Ayur- veda Acharya, President, Hyderabad State Ayur- vedic Congress	"

BOMBAY.

273. Dr. Chaman Lall Mehta, Representative of Indian Medical Association. Bombay.
274. „ Rochi Ram A. Amesur, Representative of Indian Medical Association. „
275. „ Asa Nand Panjaratan, Principal, R. A. Podar Ayurvedic College. „
276. Col. M. G. Bandari, C.I.E., Surgeon-General to Govt. of Bombay. „
277. Hakim Shamsul Islam, Secretary, Board of Tibbia College. „
278. Shifa-ul-Mulk Hakim Rashid Ahmed Khan. „
279. Shri. Vamana Rao, D. Vaidya. „
280. Vaidya Venimadhav Shastri Joshi. „

POONA.

281. Dr. R H Bhadkamkar, M.A, M.D., Ex-President, Board of Indian Medicine. Poona
282. „ T. S. Patankar, M.B.B.S., Professor, Ayurvedic College. „
283. „ Bendra, M.D., Professor of Medicine. „
284. „ Gokarna, M.B.B.S., Professor of Anatomy. „
285. „ A. C. Lagu, M.B.B.S. „
286. „ Y. A. Pathak, M.D., Professor, Midwifery, Poona Ayurvedic College. „
287. „ Dixit, M.D., Principal of the Medical College. „
288. Vaidya Krishna Sastri Kavade, B.A. „
289. „ T. R. Apte. „
290. „ G. T. Joshi. „
291. „ B. V. Gokhale, Ayurvedic Parangat, Principal, Ayurveda Mahavidyalaya. Poona
292. „ N. V. Ghosh, A.V.V., Prof. of Nidana Chikitsa. „

293	Vaidya	Y V Phatak M D	Professor of Midwifery	Poona
294		Desha Pande	Ayurvedacharya Professor of Jurisprudence and Toxicology	
295		H V Kulkarni A V V	Professor of Ear Nose and Throat	
296		Mule A V V	Professor of Midwifery	
297	Mr	Mojhe B sc	Prof of Chemistry	
298		P V Blat M sc	Professor of Physics	
299		Sane M sc	Professor of Biology	
300	Dr	V M Bhat B A M B B S		Yecola
301		H V Savnoor L M S		Belgaum
302		M N Agashe M B B S		Satara
303	Vaidya	V R Godbole A V V	Prof of Pathology	Poona
304		N R Purohit	Professor of Ayurvedic Sharir	

AHMEDABAD

305	Dr	Barve	The Acting Principal, B C Medical College	Patna
306	Vaidya	Nagarlal Phatak		1
307		Takur Lal N	Julundwala Principal U P Ayurveda Vidyalaya	
308		Madav Prashad	Narayan Shankar	Ahmedabad
309		Laxmi Shankar	Ram Krishna Sastry	
310		Har Prashad C	Bhat	Baroda
311		Vasudev Mul Shankar	Divedi	Dhangadra
312		Sunder Lal N	Josh	Nad ad

JAIPUR

313	Dr	Prem Nath Dhande B A M B B S	D strict Health Officer	Jaipur
314		W Nasareth	Acting Director Medical Services	
315	Vaidya	Jagannada Dasu	Swamy Ayurvedacharya Principal Government Ayurvedic College	

316	Vaidya Pandit Nanda Kishoreji, Ayurvedacharya, Principal, Government Ayurvedic College	Jaipur
317	„ Mangal Dasji Swami	1 „
318	„ Kalyanpoornandjee, Bhishaga charya	„
319	„ Mulchand Deolji Bhishag ratna	,
320	„ „ Niranjanlalji Inspector of Ayurvedic & Unani Institute	„
321	Hakim Mohd Ibrahim Khan	„
322	„ Salimuddin Khan Saheb Prin cipal Rajaputana Ayurvedic and Unani T B College	„

APPENDIX No A III (12)

SUMMARY OF THE ORAL EVIDENCE TAKEN BY THE
COMMITTEE IN ITS TOUR
NEW DELHI
4th March, 1948

Dr Jitraj N Mehta, Director General, of Health Services, Government of India, who was the first witness to tender evidence expressed his agreement with most of the views expressed by his predecessor, Lt Gen R Hay in his memorandum to the Committee

Referring to the question of evolving a synthesis of the Indian and Western systems of medicine, Dr Mehta observed that the person entrusted with the care of human body must be competent by virtue of the possession of theoretical, practical and clinical knowledge of medicine. He must know the fundamentals of chemistry and physics, biology and structure and function of the body. In addition, medical practitioners of whatever system, must have knowledge of forensic medicine. A rural practitioner must have a knowledge of obstetrics. As regards medicine, a doctor should use whatever drugs of any system as are found useful. There is no difference of opinion in regard to the above. Only in medicine and pathology can there be a difference of opinion. The question of synthesis will arise in connection with these two subjects only. The merit of the scientific system (Western system) is that it is willing to absorb knowledge from whatever source it can. We cannot be stated remain static and base our practice on the ancient system only.

In regard to pathology, Dr Mehta said that the modern practice of post mortem is not used in indigenous medicine. The indigenous practitioner, has therefore, no knowledge of methods of pathology, nor does he use them.

Asked whether the present day Ayurvedic and Unani institutions meet with our requirements, Dr Mehta replied that

- (i) The buildings in which many of these institutions are housed are cramped and unsuitable
- (ii) the teachers employed in them are not always competent,

- (iii) facilities for teaching are not adequate; practical demonstrations are not always possible;
- (iv) while they have anatomical models, dissections are often not possible;
- (v) variety and sufficiently large number of patients in charge of competent teachers are not there, and
- (vi) all these depend on funds.

Requested to give his opinion regarding the causes leading to the unsatisfactory state of these institutions, Dr. Mehta stated that it is due to lack of public interest. Government provides what people want. The votaries of these systems have not been able to draw the attention of the people to them.

Asked if the Western system was adopted in response to public opinion, he replied that since the public had become vocal, it had clamoured for the Western system. In reply to the question whether the position would have been the same if from the early days Ayurveda and Unani systems had been taught and not the Western medicine, Dr. Mehta said that at the time the Western system was introduced in India the indigenous systems were static.

Questioned if it is possible to improve the indigenous institutions, he replied that as the very buildings of these institutions have insufficient accommodation and are ill-equipped, good teaching is not possible in them. These institutions must be modernised and their theories should be tested and verified.

In regard to Research, Dr. Mehta agreed that there should be a first class Institute for the purpose and added that there should be large scale institutions with many beds for comparative studies. He felt that it is not correct to say that 80 per cent of the population are being treated according to the indigenous system. All practitioners of these systems are not Vaidyas or Hakims; they exploit the name of these systems. He observed that the best from every system should be taken and formed into one system.

In regard to the control of practice and teaching and a Medical Council to regulate the same, he felt that there should be one Council of Medicine and that, air-tight compartments should not exist in medicine. All practitioners should be under one control. For a short time and as an interim measure, there can be a separate section of the Indian medicine in an All-India Medical Council.

When his attention was drawn to the views of the Health Survey and Development Committee that it would take more than a generation to have sufficient number of doctors and requested to state as to what arrangements he would propose for providing medical relief to the masses during the period of transition, he replied that an overwhelming majority of indigenous practitioners are quacks and therefore much cannot be expected of them. He however felt that the Government should give better terms to trained persons to settle in villages and there should also be an itinerant team of experts. He added that some of the indigenous practitioners may be trained to be vaccinators etc. He suggested further, that a six months' to one years' training in public health and preventive medicine should be given to persons already trained in indigenous subjects. This in his view will be helpful to fit them in for rural medical relief. Practitioners of indigenous systems of medicine, he said, should be registered and no unqualified new entrants should be allowed to come on the register.

In regard to education relating to Indian medicine he said that it should be of one type only. The basic education to all students of Indian or Western medicine must be common and given in the same institutions.

Questioned if he is in favour of the Indian systems carrying on as at present along with the Western system he replied that in as far as the practice as it obtains now is concerned something is better than nothing and that the present institutions should not be interfered with. He felt that they may continue to exist but education imparted in them must be of the new type. Asked if the State will help the teaching institutions of Indian medicine and improve them, Dr. Mehta replied that it would be better to devote all available money to found new and first class institutions than pour money into the old ones.

Dr. Mehta expressed himself strongly in favour of establishing a Central Research Institute. He stated that we should take the best from every system. The Research Institute should be for research of things actually done, and not merely for research in old literature.

Dr. S. C. Sen who appeared before the Committee in his personal capacity expressed agreement with the memorandum submitted by the Indian Medical Association. In regard to the type of medical relief Indian medicine affords to the people Dr. Sen opined that it is in the hands of quacks. Referring to

the teaching of medicine in institutions of Indian medicine, he felt that it is elementary and the quality of teachers in these institutions is poor. He pointed out that Western methods of diagnosis such as X-Ray, etc., are being made use of in some of them. When questioned if the adoption of the methods of Western medicine will advance Indian medicine, he replied that he cannot say anything definite about it, and felt that modern methods are perhaps adopted because patients are keen on having them. When his attention was drawn to the view of the Health Survey and Development Committee that it will take many years for India to have fully qualified doctors, and asked to state his opinion in regard to the need to utilise the practitioners of Indian systems of medicine for the transition period, Dr. Sen expressed the view that the existing indigenous practitioners may be utilised as assistants and not otherwise. He further stated that no one who does not possess a registrable medical qualification should be allowed to practice. Cases of infectious diseases should not be allowed to be treated with Indian medicine or by its practitioners, unless they are able to show that they have equally good specifics. He added that Vaidyas and Hakims have no place in the programme of medical relief of the country, and expressed the view that at one time, in the beginning, Indian medicine was scientific but not now. He opined that all old things can be investigated historically, to find out what was known to the ancients and of them, to discover those that are good and true. For research in these systems, what is required is a team of experts.

Hakim Mohammed Jamil Khan Sahib, giving evidence next, stated that the Tibbia College, Delhi, where at present, Unani classes are not working, should not be taken over by the Government. He was, however, for imparting training in the Indian medicine and added that the Unani system is better taught in Arabic. He was not in favour of evolving a synthesis of all systems and opined that the different systems should be kept separate from one another. In his view, registration of practitioners of Indian medicine is necessary and suggested that a Board of Indian Medicine should be set up for this purpose.

Hakim B. N. Sharma, who was examined next, expressed the view that Indian medicine should be strengthened wherever it is weak from Western system, but felt that a synthesis of the two systems may not be possible due to differences in their fundamental theories. In his opinion, those who have studied the

Unani system in Arabic have not done well in their practice. The present position of teaching in the Unani system, according to him is that, some medical subjects are taught in Arabic and most others in Urdu. He is for exercising control over the practice by registration which should be done by a separate Medical Council of Indian Medicine specially constituted for the purpose. He also urged that all the existing practitioners of some years standing should be brought on the register and uniformity of qualification for new entrants prescribed.

The Committee then recorded the evidence of the following Vaidyas

Kaviraj Sudhanwa Vidyalkar

„ Madan Mohan Chopra,

„ Ashutosh Mazumdar

Vaidya Guru Dattji, M Sc, and

Pandit Nandnathji

In regard to the medium of instruction in subjects appropriate to Ayurveda, the opinion expressed by these Vaidyas is divided. While Kaviraj Sudhanwa Vidyalkar and Vaidya Desraj are for Sanskrit the others stand for Hindi. Kaviraj Mazumdar is for compiling the texts in Sanskrit and then translating them in Hindi and other vernaculars. The witnesses are however, unanimous in their view that modern sciences in general and such subjects as anatomy physiology, etc in particular, should be taught to students of Ayurveda. Among the other subjects on which these witnesses are unanimous are

- (i) The need for evolving a synthesis of all the systems now practiced in the country founding a Research Institute with attached in door hospital and pharmacies, the standardisation of drugs making full use of modern scientific methods and equipment for the purpose, and the use of diagnostic methods of Western medicine by the practitioners of Indian medicine
- (ii) The registration of practitioners should be on a voluntary basis and controlled by a Central Board which may function as an independent section of the General Medical Council of India

ALIGARH

7th March, 1948.

The following witnesses were examined :

Shifa-ul-Mulk	Hakim Abdul Latif,			
	Vice-Principal,	Tibbia College.		Aligarh.
Dr. I.S. Shah,	Lecturer,	„	„	„
„ I.H. Ansari,	„	„	„	„
„ M.S. Rahman,	„	„	„	„
Hakim Mohd. Zahiruddin Khan.		„		„
„ Zargham Ali Khan.		„		„
„ Ahmed Ali Sufi.		„		„
„ Ansarual Hassan.		„		„
„ Mohd Ahmed Kahiri.		„		„
„ Shabbir Ahmed Khan Sherwani.				„
„ Mohd. Swalesh Khan Sherwani.				„
„ Mohd. Inamullah Qadri				„
„ Siddique Ahmed.				„
„ Mohd. Hanif Khan.				„
„ Mohd. Ahmed Khan Asifabadi				„
„ Wasi Ahmed.				„

All the witnesses are in favour of the utilisation of modern diagnostic methods by their system.

In regard to synthesis, the witnesses are of opinion that the syntheses of the three systems into one will take time to be achieved, and if undertaken in a hurry, may prove to be harmful.

The witnesses expressed the view that for short term synthesis (i) six months training in hygiene and preventive medicine for students who had qualified from recognised institutions will be necessary and, (ii) a two years' course for those who have not qualified through any recognised institution should be instituted.

In regard to Research, the witnesses agreed that modern scientific methods should be employed for testing and proving the Indian systems. They expressed the opinion that a Research Institute is a necessity, where investigations should be carried out in 3 directions, viz., literary, laboratory and clinical.

As regards medical education, the witnesses are unanimous in their opinion that the length of the course of study in Indian medicine should be 5 years which should provide for training in

the basic subjects such as chemistry, physics and biology. The course should be of uniform standard all over India. The witnesses agreed that Registration of practitioners should be made compulsory and no unregistered practitioner should be permitted to practice after a specified period. Registration they said should be done by a separate section of Indian systems in the All India Medical Council. The medium of instruction in Indian medicine should be in the provincial language. Special text books should be prepared in all the subjects. There should be an All India Board for the translation of old texts. As long as the necessary literature remain untranslated, knowledge of Arabic would be essential for the students of Tibb.

In the opinion of the witnesses an Indian Pharmacopoeia is necessary which should lay down standards for drugs. They are agreed that courses in Pharmacy should be instituted and pharmacists should also be registered.

LUCKNOW

11th March 1918

(1ST DAY'S SESSION)

The following gentlemen representing the institutions mentioned against each gave evidence before the Committee

Dr J. D. Sharma Mulchand Rastogi Ayurvedic College
Lucknow

Hakim Abdul Habib Sahib Joint Secretary Mambaul
Tibb College Lucknow

Mohd Amin State Aided Unani College Lucknow

Mr Sahid Raza Joint Secretary Mambaul Tibb College
Lucknow

Vaidya Ram Sevak Misra A. M. C. Kanva Kubja Ayur-
vedic College Lucknow

J. N. Bahuguna Acharya Ayurved Mahavidyalaya
Dehra Dun

Madan Gopal Fyzabad

Requested to state the difficulties confronted by them in their work all the witnesses stated that the lack of facilities for training teachers to teach students pharmacists to prepare reliable medicines insufficient financial aid to run the institutions the lack of ancient standard books for study and reference and also the absence of laboratory facilities which were in existence in ancient times are among others the more important ones.

Enumerating the difficulties felt by their Collegés in attracting the proper type of students, the witnesses stated that they do not get first class material for training as, fair prospects and opportunities of State service are not vouched for them when they have completed their courses. Mismanagement of teaching institutions and low salaries offered to teachers are other important factors. Best teachers are not attracted for service due to the poor emoluments offered to them.

In regard to (i) if there should be few but better and well-equipped institutions, (ii) if hospitals with sufficient beds for teaching purposes can be attached to small institutions, and (iii) if the Unani and Vedic systems can be made into one, the witnesses were divided in their opinion. While some of them held that the two systems cannot be combined, others felt that they can be combined to a certain extent. A few expressed the view that all the good things of Ayurveda including its theories and drugs were already incorporated in Unani Tibb centuries ago and therefore there is not much left now to be incorporated into the latter. In answer to the question if the two systems can be combined in teaching, a section of the witnesses stated that this can be done but not until the students have qualified in one or the other system first. Another section opined that it is possible to combine the teaching of the two systems, as their fundamental principles are identical. Questioned about the language of the texts and medium of instruction, some of the witnesses stated that they are in favour of Arabic being the language of text books and teaching and others expressed themselves in favour of making Urdu the language of books and instruction for Unani. In regard to Ayurveda, the witnesses opined that the texts should be made available in Hindi and Sanskrit, and books on modern subjects in Hindi. They are all agreed that text books for Ayurveda and Unani should be common to all parts of India; books on modern medicine such as anatomy, physiology, etc should be translated into Hindi and Urdu and medical literature available in Arabic should be translated into Urdu. A general view was also expressed that provincial languages could also be made use of as medium of instruction.

In regard to the control of medical practice and Registration of practitioners, the witnesses expressed the view that there should be some control over the practice of medicine and the practitioners registered on an All-India basis. Opinion was, however, divided in regard to the question if the Registration should be optional or compulsory—a small minority expressing in favour of

the latter. The witnesses are of the view that the control of the practice of Indian medicine and Registration of its practitioners should vest in a Board of Medicine. While some of the witnesses expressed that the Board should have two autonomous sections—one for each system, Ayurveda and Unani—there were others who opined that it is enough to have two sections, for the Western and Indian medicine. Opinion was divided in regard to the question if all registered practitioners should have the same rights and privileges or not. A number of them held that rights and privileges should be conferred only to qualified practitioners.

In regard to synthesis in the lower levels the witnesses are in favour of a two years course. They are also for affording a six months' course for those who have not qualified through any recognised institution. The witnesses are in favour of attempting synthesis on a higher level but felt that it will take time to achieve this objective.

The witnesses are agreed that there must be a Research Institute where researches in the Indian systems of medicine should be conducted on modern scientific lines. They are also strongly for the preparation by the Government of a Pharmacopoeia of both Ayurvedic and Unani medicines, standardisation of drugs according to standards laid down in Indian medicine and the control by Government of the Dawakhana. In regard to crude drugs used in these systems the witnesses are of unanimous opinion that the Government should exercise control over their supply and purity.

12th March 1948

(2ND DAY'S SESSION)

The first witness to be examined in the second day's session was Vaidya Pandit Sitawar Pant, Ayurveda Shastrachari (B.H.U.) Nainital, President U.P. Provincial Vaidya Sammelan who stated in respect of Research in Indian medicine that it should be conducted on indigenous lines with the help of modern appliances and apparatuses. In regard to the number of institutions in any place he stated that Ayurvedic and Unani Colleges should be together, and that there should be both smaller institutions and well equipped bigger Government Colleges. Giving his views on the question of control of practice he said that there should be one Council for Ayurvedic and Unani systems but it should be entirely separate and distinct from the Indian Medical Council. His view in regard to the Registration of the practi-

tioners is that, it should be made compulsory after giving two years' notice. In his opinion text books of Indian medicine should be in Hindusthani and of one standard for All-India. The medium of instruction, according to him, should be the language of the provinces. He is in favour of compiling a standard Pharmacopoeia and the standardisation of drugs to be achieved with the help of modern scientific methods. Agreeing with the view that the different systems should be synthesised, he said that there should be one system and not many in the country. He is agreeable to the institution of a six months' course for those who hold diplomas of recognised institutions. For those who are registered but are not diploma holders, a two years' course may be prescribed to fit them in for Government service.

Dr. A. C. Banerjee, Director of Medical and Health Services, in the United Provinces, giving his evidence next, stated that he knew personally nothing about Indian systems except through their literature. In his view, an attempt should be made to have a scientific system, and efforts should be made for providing at least one qualified medical man for every 5,000 of the population. A qualified person should be one who has knowledge of the basic sciences and the scientific system of medicine, to be able to render all-round medical relief, irrespective of the fact whether he is educated in a Unani, Ayurvedic or Western medical college.

Requested to state what his views are about the graduates of the Benares Hindu University and those registered by the Board of Indian Systems of Medicine in the United Provinces, *Dr. Banerjee* stated that in so far as the Benares College is concerned, even though some attempts are being made to teach on scientific lines, the courses still fall far short of standards comparable to the M. B. B. S. course. The instructions, as at present imparted, have very little scientific bearing nor have these institutions any laboratory facilities and equipment. If the training there can be raised to the same standard as is now adopted in the Medical Colleges of the United Provinces, then the students qualifying from this College can be considered to be on par with the M. B. B. S. degree-holders. In regard to the proposition of instituting short term courses in modern medicine to those already qualified in Indian medicine, he felt that a medium short course of at least 9 months' duration will be necessary. Such a course, in his opinion, given to the diploma-holders in Indian systems who have undergone a five years' training will make them fit for village medical relief and preventive work like mass inoculation, giving medicines for common ailments and disinfection,

registration of vital statistics and sanitary work in rural areas. Even this, he stated, will require constant direction to be of real use. He is not in favour of a 2 years' training course for non-diploma holders.

He further said that there should be a standard Pharmacopoeia for the Indian systems and the standardisation of drugs could be done through clinical trials.

Dr Banerjee maintained that there should be fewer but well equipped teaching institutions staffed with trained personnel and with hospitals attached to them. The proportion of students to beds should be 3 or 5 : 1.

BENARES

13th March 1948

(1st Day's Session)

The following gentlemen tendered evidence before the Committee

Vaidya Daljit Singh

Kulkarni

Pandit Brij Mohan Dikshit

Dr B G Ghanekar

Kaviraj Pratap Sinha

, Hariranjana Mazumdar

Hakim Altafuz Rehman

All the witnesses are of opinion that the principles of Ayurveda and Unani Tibb are generally common, differing only in certain details.

In regard to synthesis, the witnesses are agreed that the two indigenous systems can be combined into one and it is possible to reconcile these systems with the Western medicine also.

As regards Registration, they expressed the unanimous view, that it should be made gradually compulsory and also that, there should be one controlling body for all the three systems which should have 2 sections viz Western and Indian.

In regard to Medical Education in as far as it relates to Indian medicine the witnesses stated that the basic qualification for admission to Colleges of Indian Medicine should be the same for all entrants and that the curriculum of study should also be the same all over India. The duration of the course of study in their view, should be 5 years after matriculation, the text

books should be in Hindi and Urdu for Ayurveda and Unani-Tibbi respectively and the provincial languages should be the medium of instruction. The witnesses suggested short courses of training of 6 months duration for the diploma holders of recognised institutions and two years course for those who have not qualified through any recognised institution. They proposed that the salary of rural practitioners should be in the scale of Rs. 75—200, as in U. P.

All the witnesses are unanimous in their view that there should be a standard Pharmacopoeia for the country and the formulae of medicinal preparations should be uniform all over India. Drug standardisation according to modern scientific methods and all known processes should be undertaken.

They also felt that the sale of drugs should be controlled, so that only standard drugs are sold to the profession and the public.

As regards facilities for clinical training, the witnesses urged that the proportion of students to beds should be 1: 5 and this principle should be borne in mind when giving aid to colleges. They prefer to have a few really well equipped and adequately staffed Colleges of Indian Medicine and are not for many small institutions.

In regard to Research, the witnesses are of the view that 'Vedic' principles using modern appliances, wherever possible, should be adopted and that there should be an All-India Research Institute for research in the theory and practice of all systems of medicine.

They are strongly of the view that synthesis of the Indian and Western systems of medicine is not only desirable but is also possible, and opined that, as knowledge grows, the gap between the Western and Indian systems will grow less and less.

14th March, 1948

(2ND DAY'S SESSION)

After visiting the Pharmaceutic Department and Sir Sundar Lal Hospital and Ayurvedic College, Benares Hindu University, the Committee resumed its session.

The first witness to give evidence was Shree Dhulekar, Chairman, Board of Indian Medicine, U. P. who envisaged a 3 years' scheme of Medical Education in which he suggested that the basic qualification for admission should be matric or its

equivalent. The length of the course should extend to three years and an additional practical training course of 2 years in a recognised institution should be provided for. Shri Dhulekar said that only persons thus qualified should have the right to practice and not others.

He agreed to the institution of a six months' course for those who have already qualified through recognised institutions and a two years course for those who are registered but not qualified. Such persons in his view after their training mentioned above should be eligible for service under Government or Local Bodies for work in rural areas.

For the purpose of instituting Ayurvedic courses on scientific lines Shri Dhulekar expressed the opinion that the following basic subjects should be taught:

- (i) Vyākarna and Nighantu
- (ii) Yogic Science including Hata yoga
- (iii) Vaiseshic and other Darshanas
- (iv) Logic according to the Nyaya Darshana
- (v) Hindu Chemistry and its principles
- (vi) Ayurvedic Botany as distinct from modern Botany
- (vii) Jiva Shastra as distinguished from modern Biology

Books on these subjects he stated are in Sanskrit and their translations in Hindi are available. In his opinion Ayurveda should be made the basis for the evolution of a National Medical System to which all modern knowledge may be added.

The following practitioners were then examined —

Acharya Shiva Dutta Shukla Lecturer B H U Ayurvedic College Member Board of Indian Medicine U P

Shri Shardan Chand Shukla Ayurvedic Inspector U P Government

V K Patwardhan House Physician B H U Ayurvedic Hospital

Ram Sewak Misra Vice Principal K K College Lucknow

Puran Chand Jain House Asst B H U Ayurvedic Hospital

Ganga Sahai Pande Ayurvedacharya Secretary Benares Hindu University Graduates Association

Ram Subil Singh Raipur (Dist. Mirzapur)

R C Shukla A M S B H U

They are for making Registration compulsory within a specified period of time but Shri Dhulekar expressed the view that

Registration may remain open till the shorter course suggested by him earlier for the existing practitioners has been started

In regard to the control of teaching and practice, the witnesses, opined that there should be a body constituted for the purpose, for All India. They suggested the creation of one National Medical Board with two sections—Western and Indian

As regards the syllabus, the witnesses held that it should be uniform and applicable to All India. They also felt that, for Government service, a six months' refresher course followed by an examination open to diploma holders of recognised institutions will be necessary and added that the diploma holders of some of the institutions where such training is provided may be allowed to take the examination without going through the refresher course

The witnesses are for compiling a standard Pharmacopoeia which should contain standard compound preparations conforming to uniform composition. They are for adopting both Ayurvedic and modern methods in respect of the standardisation of medicines

PATNA

15th March, 1948

(1ST DAY'S SESSION)

In the first day's session of the Committee, the following Hakim's tendered their evidence

Shifa ul Mulk Hakim Syed Muzhair Ahmed Sahib

Hakim Mohd Idris Sahib Principal, Government Tibbia College Patna

„ Abdus Shakoor Sahib, in charge of Shafa Khana, Government Tibbia College Patna

„ Abdul Abid Sahib, Professor, Government Tibbia College Patna

„ Zakiur Rehman Sahib

Stating that the basic qualification for admission to Colleges of Indian Medicine should be the same all over India, the witnesses considered that matric or its equivalent should be the minimum and a knowledge of English is not essential, as all the necessary text books are available in Urdu. They are of the view that a four years' course should be enough. In the Government Tibbia College, they said, the average number of students

who qualify is 15 per year and they generally practice in villages

A six months course of training in preventive medicine etc, open to qualified practitioners to enable them to join Government service is acceptable to them. A two years course they stated would be necessary for non qualified persons to fit them in for Government service. They felt that in order to make students join the two years course it would be necessary for the Government to assure employment to every such candidate who successfully completes his course

The witnesses are for introducing compulsory Registration and the constitution of an All India Medical Council with two sections—Western and Indian

Research in Indian systems in their view, should be according to Tibbi principles supplemented with modern scientific methods. The witnesses are unanimously of opinion that there should be one Pharmacopoeia and modern methods of standardisation of remedies should be adopted. In so far as medical education is concerned the Hakims laid stress on the need for better and efficient clinical training. For this purpose, they urged that there should be no medical educational institutions without in door hospitals attached to them with sufficient number of beds and staff

The witnesses are of the opinion that standard text books should be written in Urdu and the medium of instruction should be the mother tongue

They also stressed on the need for instituting courses of training in Pharmacy which should be made compulsory for all Pharmacists

They also opined that there should be arrangements for training nurses

The next witness to tender evidence was the *Inspector General Civil Hospitals Patna* who said that he had nothing to do with the Department of Indigenous Medicine and that there was no collaboration between that Department and his

In his view, it is possible to evolve one system of medicine. He felt that the practice of giving small scale aid to a number of small institutions is not advisable and that there should be one or two really first class institutions instead of innumerable smaller ones

He also opined that the provision of a six months' course in public health and preventive medicine etc., open to qualified students of recognised institutions would be useful to fit them in for rural work and similarly, a two years' course for non-qualified persons will be necessary to meet the needs of the country.

The Inspector General expressed the view that there should be compulsory registration.

Evidence of the following Vaidyas was then taken :

Dr. J. N. Misra.

Kaviraj Ram Rakshak Pathak, Principal, Ayurvedic College, Begusarai, Monghyr.

„ Brij Bhushan Sen, Senior Professor, Government Ayurvedic College, Patna.

„ Manmatha Nath Bandhopadyaya, Secretary, Jatindra Narayan Ayurvedic College, Bhagalpur.

Prof. Ram Dev Sharma, Government Ayurvedic College, Patna.

Pandit Kalika Misra, President, Bihar Provincial Vaid Conference, Patna.

„ Nand Kishore Misra, Secretary, Bihar Provincial Vaid Conference and also Ayurvedic Graduates' Association, Bihar

„ Priyavart Sharma, Vice-Principal, A. S. K. Ayurvedic College, Begusarai, Monghyr.

„ Kapil Dev Sharma, Editor, "Swasthya Sandesh" Patna.

„ Bhairav Giri, Professor, Dhenuswan Ayurvedic College, Muzaffarpur.

„ Ram Narain Sharma, Proprietor, Vaikunth Ayurvedic Bhawan, Patna.

Babu Sukh Ram Prasad, B. Sc., Ayurvedacharya, Professor, Government Ayurvedic College, Patna.

All the Vaidyas are for making the Registration of practitioners compulsory.

In regard to research, they are of the view that it should be carried on in accordance with Ayurvedic principles, with the aid of modern scientific methods.

The witnesses opined that in regard to the teaching of Indian medicine, the basic qualification for admission to undertake the prescribed course should be matric with Sanskrit or Madhyama with Arithmetic or an equivalent qualification. They added

that the teaching of physics chemistry, and biology should form part of the courses in Ayurveda. The duration of the Graduate course in their view should be five years. Majority of the witnesses are against a shorter course of three years even as an interim measure. All of them felt that while the text books should be in Hindi, the original texts should be studied in Sanskrit. The medium of instruction should be in the mother tongue. They are also of the view that it would be better to have fewer but well equipped and adequately staffed teaching institutions than many small and ill equipped ones. In regard to the proposition of fitting in the qualified practitioners for service in rural areas the witnesses are of the opinion that a short special course of about eight months in Hygiene and Public Health and a qualifying examination at the end of this period may be necessary. A two years' course, in their view, would be useful for those who are not qualified from any recognised institutions so as to fit them in for service under the Government in rural areas.

As for the control of the practice the Vaidyas are of opinion that it should vest in the Indian Medical Board to be constituted for the purpose with two autonomous parts—Modern and Indian.

The opinion among the witnesses happens however to be divided in regard to the question of synthesising the Indian and Western systems of medicine. They are unanimous in the view that an All India Pharmacopoeia of Indian Medicine should be compiled and standardisation of medicine carried out on modern scientific lines.

While all the witnesses are for control of the Pharmacies dealing with Indian medicine the attitude of several Vaidyas among them was definitely hostile to the incorporation of any innovation based on modern advances. In their view every thing should be based on the old systems and Sanskrit texts.

Kaṁraj H N Chaturvedi, Principal Government Ayurvedic College and Honorary Superintendent, Indigenous Medicine Government of Bihar, (co opted member from Patna) was the last witness to be examined. He stated that there are 250 dispensaries run by local bodies and about 300 rural dispensaries are soon expected to come into existence directly under the Government. The cost of maintenance staff and medicine for the 300 dispensaries he said would be Rs 1 800 for each dispensary per year. The total estimated expense in this regard would

be Rs. 5,40,000, and he added that the Government intends to open a new T. B. Sanatorium in Digba. He further stated that buildings for these dispensaries will have to be provided by the public.

In his view, a synthesis of the three systems can be worked out in time as enough opportunity is created to the Unani and Ayurvedic systems to develop.

CALCUTTA

18th March, 1948

(1ST DAY'S SESSION)

Dr. R. B. Lal, Professor of Epidemiology, All-India Institute of Public Health and Hygiene, who was the first witness to be examined by the Committee, gave an account of the work done by the Singur (Hooghly District) Health Unit among a population of about 69,000, during the year 1945 and quoted figures relating to community health, average duration of sickness in children and adults, the incidence of morbidity and death. He pointed out that for a total sickness of 12.7% the number of dispensaries required to deal with the unsatisfactory situation prevailing in such places will be in the proportion of one for every hundred of the sick population. The total number of dispensaries required, according to his figures, has been calculated at 72 for a place like Singur, while the actual position is that there are only four in existence. Even these few dispensaries, stated *Dr. Lal*, are not getting the full number of patients. Commenting on the medical aid available in this locality, he stated that there is one in each of a penal and emergency hospital with 18 and 20 beds respectively. In regard to the medical personnel available, he said that the total number of registerable practitioners of Western medicine including the four employed in the dispensaries referred to above are 13, Ayurvedic 1, Homeopathic 16 and quacks 31. This works out to about 1 doctor per 1000 (61 for 69,000) and Rs. 2.5 is spent on the number of practitioners mentioned above. He pointed out that the proportion of registered practitioners of the Western medicine to the population works out to about 1:5,000 in Singur as compared to the ratio of Doctors to population in (i) British India 1 for 6,000 ;
(ii) Great Britain 1 for 1,490 ;
and (iii) U.S.A. 1 for 750

He also gave figures of sick people who are unattended, and attended to by those not holding registerable allopathic qualifi-

cations, as 42% each for the two categories. In his opinion, there was no evidence to believe that the Indian medicine specially suits Indian constitutions. In conclusion, he observed that the cause for this sad state of affairs is on the Government level or at levels other than that of the masses.

The next witness to be examined was *Dr B Mukherjee*, Director, Drug Control Laboratory (Government of India) Calcutta, in whose opinion a Pharmacopoeia of simple remedies will be possible in 25 to 30 years provided a School of Research is set up. He stated that at present work in this direction is not being done along proper lines.

Dr M N De Professor of Medicine, Medical College, Calcutta, who tendered evidence next, in answer to the question, whether the services of the practitioners of Indian medicine can be utilised in an interim plan of rural medical relief, stated that it can be done after giving them an extra special training meant for the purpose. Asked if the country could have three parallel systems running together, Dr De replied that there should be only one Indian system. Questioned if Ayurveda supplemented by modern advances in chemistry, physics, physiology, anatomy, pathology and biology can be made self-sufficient, he replied in the affirmative and added that it should retain such things as can be supported by scientific principles. To the question whether modern sciences and corresponding Ayurvedic sciences can be taught together he said that they should be taught as one system. He was for instituting a six months course of training for those who are already qualified from recognised institutions to fit them in for Public Health Service. He added that the study of the theory of 'Soil' will be of much help. In reply to the question if there is any difference between anatomy, physiology etc., of the Western medicine and Ayurveda, Dr De asserted that facts must be the same for the Western sciences or Ayurveda. In his view, the observed backwardness of students of Ayurveda is due to lack of competent teachers. He therefore urged that the teaching of medicine should be entrusted to competent teachers in all the Ayurvedic institutions. Requested to state his views as to why the number of students in Ayurvedic institutions has gone down, Dr De stated that this was probably due to the fact that the students who have to undergo a course of training extending to four or five years find no prospects open to them in Government service.

Dr De further stated that the length of the course of training in Ayurveda should be four years if students are well versed in

Sanskrit. He added that the Registration of indigenous medical practitioners should be compulsory, and that there should be an All-India Board for regulating teaching, registration, etc. In his view, there should be one Medical Board with two autonomous sections—one for Indian medicine and the other for Western medicine. He urged that there should be a Research Institute where research in Ayurveda can be carried out with the collaboration of modern scientists and with the use of modern methods. The text books, he stated, should be in the provincial languages (translated from Sanskrit originals) and the medium of instruction, should also be the provincial languages. He suggested that there should be a Committee set up by the Government for compiling text books on Ayurvedic subjects and these books should first be got up in Sanskrit. In his opinion, there should be a few but first class and well-equipped teaching institutions, having on their staff well-qualified teachers, and hospitals and laboratories attached. In regard to teaching institutions in Calcutta, he thought that it would be better to amalgamate the three under-mentioned institutions into one:

- (i) Jamini Bhushan Ashtanga Ayurved Mahavidyalaya
- (ii) Shyamadas Vaidya Shastra Pith.
- (iii) Vishwanath Ayurved Mahavidyalaya.

He opined that there is an urgent need for compiling a standard Indian Pharmacopoeia and the standardisation of medicines should be done with the help of modern scientific methods.

19th March, 1948

(2ND DAY'S SESSION.)

The evidence of the following practitioners was recorded :

Kavraj Jatindra Mohan Das Gupta, Calcutta

Sachindra Nath Chatterjee, Professor, Vishwanath Ayurveda Mahavidyalaya, Calcutta.

Provash Chandra Sen, M.B., Vice Principal, Vishwanath Ayurveda Mahavidyalaya, Calcutta.

Murari Mohan Sharma, A.D.M., Superintendent, M.C.(G.S.) Ayurved College and Hospital, Calcutta.

Herambanath Bhattacharjee, Professor in Charge, M.C.(G.S.), Ayurved College and Hospital, Calcutta.

Bibuty Bushan Biswas, M.C.(G.S.), Ayurved College and Hospital, Calcutta.

Taracharn Tarkadarshantirtha, Calcutta.

Kaviraj Promotha Nath Sanyal Sastri, Calcutta

„ Hari Gopal Chatterjee, Chinsura

„ Nakul Chandra Sen, Calcutta

„ Bijayyakali Bhattacharya, All India Ayurvedic Congress, Calcutta.

„ Birendra Kumar Mullick, Kalna (Burdwan)

Pranacharya Kaviraj Survan Kumar Sen, M Sc, Principal and Superintendent, Vishwanath Ayurved Mahavidyalaya and Hospital, Calcutta

Dr Indu Bhushan Ray, M D, Surgeon Vishwanath Ayurveda Mahavidyalaya, Calcutta

„ J N Moitra, M D, Calcutta

The witnesses are agreed that there should be a Research Institute where research on Ayurveda could be carried out on modern scientific lines.

Basic qualification for the study of Indian medicine in the opinion of the witnesses, should be I Sc (Med) with knowledge of Sanskrit upto matric standard and the length of the course should be at least four years for I Sc (Med) In the case of students who have no qualifications in Science, they felt that the course should be of five years' duration

In their view, students will be forthcoming to join Ayurvedic Colleges, if the same privileges and patronage as are open to students of Western medicine are available to them also The witnesses are unanimously of opinion that the courses of study should be uniform for All India

In regard to the control of practice they are for one Indian Medical Council with two autonomous sections for Indian and Western medicine In regard to the question of how the existing practitioners could be utilised for Health Services, the witnesses stated that for qualified Kavirajas who have not received training in Public Health and who desire to enter Government service there should be a six months special course and for the unqualified, there should be a two years course of training

The witnesses stated that the text books should be compiled first in Sanskrit and then translated into provincial languages and the medium of instruction should also be through provincial languages They urged that there should be an Indian Pharmacopoeia, and drugs should be standardised and tested both by indigenous and modern scientific methods

In regard to the question of synthesis of the Indian and Western medicine, they expressed the view that for the present, the three systems should be kept separate and this question taken up later on for consideration.

The witnesses urged that there should be a central model institution (Ayurvedic College). As regards other private institutions, they felt that they may be retained provided they come up to the required standard.

At this stage it was brought to the notice of the Committee that there are about 8000 registered and 12,000 un-registered practitioners in the province of Bengal. In the view of the witnesses the Registration of the practitioners should be optional and un-registered practitioners should not be allowed to hold any office in any recognised institution or under the Government or in a lying-in hospital.

They are strongly of the view that the grant of Degrees and conduct of examinations should be vested in the Universities. They also urged that the Government should take steps to help games, sports and Yogic exercises as preventive and health building measures.

20th March, 1948

(3RD DAY'S SESSION)

Those present to give evidence were the following :—

Kaviraj Tharanga Bhushan Das Gupta, Secretary, State Faculty of Ayurvedic Medicine, Calcutta.

„ Hanuman Prasad Agarwal.

„ Ram Chandra Misra.

„ Shree Narayan Sharma.

„ Nand Lal Hakim.

„ Grijja Shankar Bhattacharya.

„ Hawlal Majumdar.

„ M. L. Das Gupta.

„ Bireswar Sen.

„ Ramaniranjan Bhattacharya

„ Dev Deva Bhattacharya.

„ Jadavendra Kumar Roy.

„ Rambhadra Roy.

„ Lalit Mohan Misra.

„ Sushil Kumar Sen Gupta

„ Sachindra Nath Sen Gupta.

„ Rajaram

- Kaviraj Subosh Chandra Roy
 „ Parimal Kumar Sen Gupta
 „ Ramkrishna Shastri of Shyamadas Viadyna-
 shastra Pithi
 „ Rajvaidya Bagala Kumar Mozumdar, M A ,
 Founder and Director, Ayurveda Biganan
 Parishath, Ex-Professor, G A College,
 Calcutta
 „ Atul Bihari Dutt
 „ Kesheynath Chatterjee
 „ Mulliram Joshi of Sri Satnarayan Datab Dis-
 pensary, Calcutta
 „ Amolacharan Sen.
 „ Dharamidhar Shastri
 „ Sundarlal Sharma Vaid, Ayurvedacharya
 Arun Kumar Gupta
 „ Amualya Chandra Nandi
 „ Hriday Bhushan Gupta
 Shivakohaji Joshi, Tirthacharya
 „ Nandalalji Hakim, Bhishagacharya
 Sunderlalji, Ayurvedacharya
 Keshavdevji
 „ Motiramji, Vaidyara
 Ramachandraji Mishra, Bhishagacharya
 „ Rajaramji Shastri Tiwari
 „ Vrajnathaji Mishra, Vaidyara
 „ Madhavaprasadji Agiawal
 Rajavaidya Prabhakar Chatterjee, M A
 Dr Sachi Kumar Chatterjee
 „ R Sinha, Secretary, Calcutta Branch, Indian
 Medical Association
 „ P K Guha, Hony General Secretary, Indian
 Medical Association, Calcutta
 „ K K Sen Gupta, (Leader of the Indian Medical
 Association Delegation)
 „ A K Sen (Deputy Leader, Indian Medical Associa-
 tion Delegation)
 „ N R Sen Gupta, M D
 „ Ramandas Kuherjee, M R C O G (Lond)

The Representatives of the Indian Medical Association were the first to be examined. They deposed that in the view of the Indian Medical Association, the modern system is the 20th century edition of Ayurveda, and expressed it as their view that

there should be no separation of systems. The leader of the Delegation stated that the views of the Association in regard to Indian medicine is reflected in the resolution of the All-India Medical Conference (1928) which, as now amended by him, runs as follows:—

“Resolved that this conference is of the opinion that the Universities, State Medical Faculties and other educational institutions should immediately make necessary provision for Chairs in Indigenous Medicine, representing the ancient ‘Ayurveda’ the parent of the current Ayurvedic and Unani systems of Medicine, the study being organised on a modern scientific basis, leading to a scientific investigation of the classical culture into all things of present day utility and adaptability, also a sustained lead being given towards research on up-to-date scientific methods.”

Stating that the ancient writers made a scientific approach to their subjects at the time they wrote their works and were up-to-date in their times, the witnesses expressed their desire to absorb every kind of knowledge and work for their ultimate synthesis.

Dr. N. R. Sen Gupta, tendering evidence next, stated that it will be possible to use the qualified Vaidas after giving them an extra training for medical work, if the Government needed their services. In regard to the question of synthesis of the Indian and Western systems, he stated that the method of approach of the two systems is so divergent that synthesis is not possible. He expressed as his opinion that the practitioners of Indian medicine will make better Vaidas if they are not given training in modern medicine, as the teaching of this system is likely to confuse them. He further stated that, if it is possible to reconcile the Ayurvedic system with the modern, a synthesis is possible, but not otherwise. In regard to Ayurvedic teaching institutions, he stated that they are not well-equipped so as to be able to give good training and added that private practitioners of indigenous medicine will not be able to treat many diseases of the people, even after undergoing a course of training in modern medicine.

Dr. B. D. Mukerji in his evidence stated that he has high regard for Ayurvedic medicine.

Shri S. K. Chakrobarty, Representative of the Government of Assam, in his evidence, stated :

Ayurveda is very popular. There was till recently no arrangement for the teaching or study of Ayurveda in Assam and only examinations were conducted at the Government Sans-

krit College, Gauhati. The Ayurvedic School started two years or so ago has not been able to attract many students. The medium of instruction for Indian medicine should be in the provincial language. Text Books should also be in the provincial language.

The *Kavirajas* who were examined next stated that the text books of Indian medicine should be made available first in Sanskrit and then translated into the different provincial languages. As regards books on Western medicine, they expressed the view that they should be written even at the outset in the provincial languages. They are agreed that a uniform All India standard should be maintained in respect of not only text books but also teaching and this should be laid down and controlled by an Indian Medical Board with two autonomous sections—one for Indigenous and the other for Western systems. They are also agreeable to supplementing Ayurveda with modern science wherever the latter is found to be deficient. Ayurvedic anatomy should be mainly taught and it can be supplemented with the modern. The qualification for admission to institutions of Indian medicine in their view, should be matric with knowledge of Sanskrit. They are unanimous in their opinion that there should be a Research Institute where researches should be undertaken according to Ayurvedic principles aided by modern scientific methods.

They are unanimously agreed about the need for introducing compulsory Registration of the practitioners of Indian medicine and urged that there should be a controlling body for the same. Opinion was, however, divided in regard to the question if there should be one Board with two autonomous sections—one each for Indian and Western systems or two separate Boards.

In regard to medical education the *Kavirajas* held that it should be done by Universities under the general direction of the Board envisaged by them earlier in their evidence. Opinion among them was divided in regard to the inclusion of modern subjects in the Ayurvedic curriculum. Pointing out that the dearth of students in institutions of Indian medicine is due exclusively to the lack of prospects and status open to them when they have qualified the *Kavirajas* stressed the need to fix the pay of Ayurvedic Vaidyas employed in Government service at Rs 150 per month with permission to practice or Rs 200 without the privilege of practice. They further added that all practitioners whether employed in the Government or in private

practice should be registered. In regard to synthesis, they held that for the present, the teaching of Western, Ayurvedic and Unani Systems should remain separate.

23rd March, 1948

(4TH DAY'S SESSION)

Shri Khiti Mohan Das Sen of Santiniketan stated *inter alia* that all the practitioners of the Indian systems should be registered and that there should be a Pharmacopocia of Indian Medicine which should be revised periodically and brought up-to-date.

He was of the view that all the teaching institutions of Indian medicine in the Dominion should be under the general control of an All-India Medical Council which should have a separate section for Indian systems. The teaching institutions themselves, he said, can be under the different Universities. In regard to curriculum, he was of the opinion that it should be the same for All-India and maintain a uniform standard and the course of studies should be of five years' duration. As for the basic qualification for admission to institutions of Indian medicine, he said that the minimum should be matric with Sanskrit-Madhyama and the medium of instruction, the provincial languages.

Discussing the language of the text books, he expressed the view that the original books should be in Sanskrit and translations of the scientific books should be made available in the provincial languages. He also stated that there should be one central teaching institution in the Capital and others in the provinces. To be able to utilise the services of the existing qualified practitioners as an interim measure for medical relief schemes, he suggested that it is advisable to give them a refresher course of six months with a qualifying examination at the end of this period.

In regard to the question of instituting a two years' course for practitioners who have not qualified themselves through recognised institutions, he requested the Committee to consider if this is necessary. He was of opinion that there is no need for synthesis at the present moment, and it may be tried later on.

In regard to Research, he felt that there should be an Institute for Research in the centre as well as in the provinces. Researches should be carried out with the help of modern scientific methods and its scientists.

He expressed himself in favour of exercising control on the sale of medicines so that pure and genuine preparations may be available in the market. The standardisation of drugs in current use, he said should, be taken up as early as possible. He further stated that there should be compulsory registration of the Pharmacutists also, who should not only receive proper training but also go through a qualifying examination.

NAGPUR

23rd March, 1948

(1ST DAY'S SESSION)

The following witnesses were examined in the first day's session of the meeting of the Committee at Nagpur

Lt Col A S Garewal, I M S, Inspector General, Civil Hospitals, Nagpur

Mr Sharma, Inspector of Ayurvedic and Unani Institutions, Office of the Inspector General, Civil Hospitals, Nagpur

Vaidya Shri B V Degwekar, M A, M Sc LL B Jubbulpore
, G S Misra, Nagpur

Lt Col A S Garewal, the Inspector General of Civil Hospitals in the Central Provinces stated that there are no State managed or aided Ayurvedic or Unani Colleges or Schools in the Central Provinces and Berar at present

The witnesses stated that students are trained in private Ayurvedic and Unani institutions as well as under private practitioners. They are examined and awarded diplomas by such bodies as the All India Ayurveda Vidya Pith the Hindi Sahitya Sammelan, etc. These institutions they said, do not provide for any practical training. They informed the Committee that the provincial Government have passed an Act for the Registration of practitioners of Indian medicine on an optional basis. The witnesses are of the unanimous opinion that Registration should be optional and not compulsory.

In regard to the control of teaching and practice, they are agreed in the opinion that there should be a Central Controlling Board constituted on the lines of the All India Medical Council. This body should be a separate one having nothing to do with the Indian Medical Council, i.e., it should be a separate section of the All India Medical Council.

The witnesses held that the teaching of Indian medicine should be planned on an All India basis and controlled by a

central agency. They recommended that the basic qualification for admission to the teaching institutions should be matric so far as English is concerned, and Sanskrit up-to a higher standard, i.e., Kavya Thirth, Madhyama etc.

All the witnesses are of unanimous opinion that the Vaidyas can be utilised for medical relief work in rural areas by giving them a refresher course of six months. The Government should give them a scale of pay of Rs. 110 per month with yearly increments, and their private practice restricted as per rules of the Government.

Vaidyas Shri B. V. Degwekar and Shri G. S. Misra stated that they are definitely of the opinion that Ayurveda as a science is practical and included anatomy, physiology, pathology, etc., according to the Tridosha theory.

They urged that text-books should be in Sanskrit which should be prepared by an All India Board, and the teaching imparted in the provincial languages.

They are of the view that research institutions should be started and researches carried out on purely Ayurvedic lines without any admixture of modern science.

Asked as to what place surgery is expected to occupy in Ayurveda, they replied that Ayurvedic practitioners are only physicians. Surgery can only be developed after several years of practice.

The witnesses are unanimously of the opinion that a Pharmacopoeia of Indian medicines should be compiled and a separate All-India Board consisting of purely Ayurvedic practitioners be constituted for this purpose. After careful research the remedies found to be of proven value should be included in the Pharmacopoeia.

In regard to standardisation of indigenous remedies, *Vaidya Shri B. V. Degwekar* stated that it should be done by a Central All-India Board. The witnesses also urged the need to constitute a central organisation by the Government for the procurement and distribution of authentic drugs to pharmacies and practitioners.

Mr. Sharma, Inspector of Ayurvedic and Unani Institutions who was next examined opined that basic subjects like physiology, anatomy, etc., should be taught in the pre-clinical course. The students should be taught the Ayurvedic systems only in the clinical course. *Vaidya B. G. Degwekar* stated that there is no

objection to the teaching of basic modern sciences provided the clinical side is purely on Ayurvedic lines. The identity of Ayurveda should be zealously preserved. The consensus of opinion was that the inclusion of basic sciences will only impart superficial knowledge of them. These subjects are not necessarily required for the study of Ayurveda.

They are all agreed to the necessity of controlling Pharmacies.

24th March 1918

(2ND DAY'S SESSION)

I
Vaidyas Shri Purshottam Shastri Hirelekar and Shri Hari Shastri Paradkar who led the evidence gave differing opinion in regard to the Registration of Vaidyas. Vaidya Hirelekar Shastri said that Registration of Vaidyas should be optional while Vaidya Paradkar opined that it should be made compulsory.

In regard to control they are agreed that a Medical Council of Indian Medicine on the lines of the Indian Medical Council is desirable and for the first few years it should be a separate and an independent body, which may be amalgamated with the later after some time if found necessary. Both the Vaidyas expressed the view that a Degree course and examination are desirable for Ayurveda. In regard to the curriculum of studies they urged the need for an All India standard and for making it extend to five years. They recommended that matric with Sanskrit should be the basic qualification for the course of training in Indian medicine and insisted that students should have a very good knowledge of Sanskrit. In their view the original text books must be in Sanskrit which may be translated into the provincial languages or Hindi and the teaching should be carried out in the provincial languages. In regard to syllabus they are of the opinion that a separate Committee consisting of Scientists, Kavirajas and Doctors should be formed to frame the same. They stated that the Government should start a model institution for teaching Indian medicine.

The witnesses are for instituting a course of training of six months duration which should include modern subjects and open to the practitioners of Indian medicine and the period of such a course can be made longer or shorter according to the basic qualification of the entrants. They are agreed that it is best to evolve a synthesis of Indian and Western systems and expressed the hope that in course of time the best in each system may be

taken and formed into one all-comprehensive and universal system for India. In their view, the compilation of a Pharmacopoeia is desirable and arrangements should be made to get the same done, as early as possible. They expressed it as their opinion that the standardisation of indigenous drugs is very essential, which should be taken up by the Government. Pharmacies of Indian Medicine, in their view, should be controlled. They recognise that research in Indian medicine is necessary and that it may be carried out both on Ayurvedic and modern scientific lines.

In regard to the suggestion that by the employment of modern scientific methods many empirical observations of the action of Ayurvedic remedies may be either confirmed or rejected, the witnesses replied that it may not always be possible to differentiate and demonstrate by modern methods the finer changes that may take place in the medicines prepared according to the methods laid down for Ayurvedic preparations.

The next witness to be examined was *Dr. M. R. Cholkar*, who stated at the outset that since he was representing the Indian Medical Association he has naturally to agree with the views contained in the memorandum submitted by that body. Speaking for himself, however, he was of the opinion that the Ayurvedic practitioners are not a menace to the society. He said that the right course to follow would be to give proper training to those who are not real exponents of the Ayurvedic science, so that they may be more useful and not become a menace to the society. He agreed with the view that in rural practice, knowledge of clinical medicine is more important than laboratory methods and facilities for which do not exist in rural areas. He maintained that it would be useless to say that the Ayurvedic practitioners who have not had the benefit of training in modern methods of laboratory technique of diagnosis etc., are misfits for rural practice.

He expressed the view that the real Kayirajas are more useful than those who are qualified in some of the institutions where they get training neither in Ayurveda nor in the Western subjects and who generally try to pass for practitioners of Western medicine.

He agreed that :

- (i) The practitioners of Indian medicine should be registered.
- (ii) There should be a central controlling agency on the lines of the Indian Medical Council.

- (iii) The practitioners of the Ayurvedic system can be utilised for rural practice after giving them training in modern subjects
- (iv) The basic education in Indian medicine should include modern subjects like anatomy physiology pathology, etc., and the students should have fair knowledge of English and a sound knowledge of Sanskrit

He was strongly of the view that there should be a Research Institute for Indian medicine and that researches should be conducted in the hospitals on Ayurvedic and modern scientific lines. He added that for this purpose there should be common out door and in door departments attached to the Research Centres

Dr Cholkar further stated that there should be registration of Ayurvedic physicians of the villages and for this purpose a census of Vaidyas now in practice should be taken. He suggested that the younger of these physicians should be given training according to the knowledge they already possess, after an examination conducted for the purpose. They should be instructed both by Doctors and real Kavirajas. The practitioners of Ayurveda as well as of the Unani must have knowledge of first aid and possess a certificate for having undergone training in them. Otherwise, they can only practice as physicians. Surgery etc., should be on modern lines. Practitioners thus trained can be utilised for affording a better type of rural medical relief to the masses.

Lt Col A N Bose Principal Medical College, Nagpur, in his evidence said that Vaidyas should be registered and recognition can be given to them only if they came upto a minimum scientific standard laid down by the State. He suggested, that for this purpose it will be necessary to establish a controlling body on the lines of the All India Medical Council. He is for maintaining a uniform standard of teaching in Indian medicine all over India. In regard to rural medical relief he observed that the most important need of the villages is preventive medicine. As an interim measure the indigenous practitioners can be given training in preventive medicine and employed in villages without insisting on their registration. The minimum qualification that may be required of these village Vaidyas must be uniform for All India.

He opined that a Central Research Institute for the observation of the efficacy of the different systems of medicine

—Ayurveda, Unani, and the Western—should be set up. Investigations should proceed in all the three systems side by side.

In his view, the ultimate synthesis of the different systems can be evolved. This will largely depend on the results obtained in the different systems by thorough going research. He further stated that research should be conducted particularly on the influence of the mind over all the different functions of the body. The effect of different *Manthras* on the system is defined in Ayurveda and these, in his opinion, depended on vibrations. This subject requires considerable research. He further stated that it is possible that the modulations of vibration which takes place when chanting *manthras* may be defined in Ayurveda. The secret of Ayurveda does not lie so much in drugs, as on the human knowledge. Ayurveda is an ancient science based on Psychology, whereas Western medicine is only now striving to study the Psychological aspects in the treatment of patients. There is therefore a great scope for Ayurveda if the real exponents of this art of healing come forward and do research and convince modern science of its real efficacy.

VIZAGAPATAM

23rd March 1948

(1ST DAY'S SESSION)

Sir C R Reddy, Vice Chancellor Andhra University, tendering his evidence to the Committee traced the origin of the Board of Studies of Ayurvedic System in Andhra University and stated

- (i) That students must be presented for examination by recognised institutions and not by the Gurukulas imparting such teachings)
- (ii) The Institutions seeking recognition should be under the management of a regularly constituted governing body with adequate representation on it for the teaching staff)
- (iii) That in addition to the Ayurvedic subjects modern subjects like anatomy, physiology and surgery in all their branches including ophthalmology and also hygiene and preventive medicine and such basic sciences like physics, chemistry and biology must be taught. The teachers must be really good and both modern and Ayurvedic subjects must be up to date and progressive, so that they may merge into one organic whole !

- (iv) That the examinations should be subject-wise and not merely bookish or confined to texts only
- (v) That subjects of the course should include Western pathology and forensic medicine
- (vi) That the staff may be part time, but with fixed duties and regular attendance
- (vii) That the qualifications for admission to such courses should be Intermediate with Sanskrit and natural science. If either natural science or Sanskrit have not been studied then provision should be made to include a preliminary course in the subjects not studied. In the alternative, the minimum qualification for admission to such courses should be *SSLC* with Sanskrit and natural science
- (viii) That the Institutions should have the necessary laboratories pharmacy and herbarium. They should have hospitals of not less than 12 beds each with out patients departments attached to them
- (ix) That the candidate should be permitted to take clinical training in the Clinics under honorary or part time staff of the College in order to gain sufficient clinical experience
- (x) That the candidate shall submit to the University 70 case sheets in Ayurveda 10 each in modern medicine surgery and midwifery

The Vice Chancellor also opined

- (a) That Sanskrit should not be a compulsory subject
- (b) That text books can be prepared in Telugu (one of the local regional languages in the Madras Presidency)
- (c) That there should be a synthesis of the systems into one
- (d) That there should be a Research Institute where processes and results of Indian Systems can be checked by modern scientific methods

24th March 1948

(2ND DAY'S SESSION)

Drs T K Raman, Professor of Medicine and *V Iswariah*, Professor of Pharmacology Andhra Medical College who were examined, expressed their views as follows —

- (i) That unless the Indian systems have the foundation of modern anatomy, physiology, etc, it is not possible to improve them.
- (ii) A Research Institute will help to separate the valuable from the useless in these systems. They must have their results checked by modern methods. To do this, it should be necessary to have the research workers of indigenous systems working along with modern research workers side by side.
- (iii) An attempt should be made to evolve one system of medicine out of all the systems now in vogue in the country.
- (iv) As an interim measure of medical relief for rural areas, qualified students from recognised institutions of Indian medicine may be given a six months' course in preventive medicine and public health so as to fit them in for Government service.
- (v) For non-qualified persons there should be no two year's course.

Dr. Raman, however, was of the opinion that Government must not give any assistance to Indian systems.

Dr. T. Bhaskara Menon, Principal and Professor of Pathology, Andhra Medical College, who was examined next stated that there should be a Research Institute. He was not for a six months' course referred to by the previous witnesses. In his view, the Indian systems should not be bolstered up. He thought that the people should carry on as best as they can in the interim period i. e. till medical relief with modern medicine is made available or properly organised.

MADRAS

26th March, 1948

(1ST DAY'S SESSION.)

Dr. Tirumal Rao, F. R. C. S., Retired Professor (E. N. T.) Andhra Medical College, Vizagapatam, in his evidence recognised the fact that many people have recourse to the practitioners of Indian medicine for their treatment. He stressed the need for co-ordinated research in these systems and said that a fusion of the Indian and Western systems of medicine would be very desirable.

In reply to the question if facilities should not be given to the Indian systems for their development before trying their fusion Dr Tirumal Rao wondered how any fusion can take place if each system is allowed to develop on its own lines. He agreed that the best of each system should be found and utilised.

In his evidence *Dr M V Krishna Rao* President Andhra Branch of the Indian Medical Association and Member Working Committee of the Association expressed agreement with the memorandum of the Indian Medical Association on some points but not all. He disagreed with the opinion of the Association that the Indian systems should be abolished. He proceeded to observe that till such time as those who are well versed in medicine can agree to the evolution of one system the indigenous systems should continue to exist as such. Dealing with the question of evolving one system by synthesising the many now in vogue Dr Krishna Rao said that there are many things which are common between Ayurveda and Modern medicine. Integration is therefore possible though it will take time for achieving the objective in view. He then made the following suggestions: (i) Co-ordinated research in Indian medicine should be pursued. (ii) There should be Chairs of History of Medicine in Medical Colleges. (iii) Researches should be conducted in all aspects of Indian medicine viz literary clinical chemical biological physiological pathological therapeutic and psychological.

For a comprehensive scheme of rural health Dr Rao expressed the view that the practitioners of Ayurveda may be given some further training in Western methods of preventive medicine and hygiene and their services utilised. In regard to medical education he opined that there should be one standard of education all over India and the same will apply to the Registration of practitioners also which should be undertaken early.

Dr T S Tirumurthi Ex President Indian Medical Association in his evidence said that he did not agree with the memorandum of the Indian Medical Association. He observed that the existence of several systems perpetuated the existence of caste system in Medicine. In his view it is possible to evolve a synthesis of the Indian and Western systems. In this connection he invited the attention of the Committee to his recent paper on Castes in the Medical Profession.

He suggested that after taking their degrees the students of modern medicine may be encouraged to take up a diploma or a degree course in Indian medicine. Similar facilities in his view,

must also be given to Ayurvedic students. Stressing the need for instituting all-round research in Indian medicine and the founding of a Central Research Institute, Dr. Tirumurthi said that there must be sympathetic collaboration in research, particularly on the clinical side, between Vaidyas and Doctors.

The following gentlemen were next taken up for evidence:—

Dr. M. Parankusam, L.M.S., F.I.M., Principal,
College of Indian Medicine, Madras,

„ V. Narayanaswami, H.P.I.M.

„ Y. Kondal Rao, L.I.M.

Representatives of the L. I. M. Association
and the Academy of Indian Medicine,

„ A. Subramaniam, L.I.M. Member, Central
Board of Indian Medicine,

Sri. K. Bala Subramania Iyer, B.A. B.L. Secretary,
Sri. Venkataramana Ayurvedic
Patashala, Mylapore

Ayurvedacharya Sri N. Madhava Menon, Retired,
Lecturer, Govt. School of Indian Medicine,

They are all agreed that Registration of the practitioners of Indian medicine is necessary. In regard to basic qualification for admission to properly organised courses of study in Indian medicine, they opined that a knowledge of Sanskrit should be made compulsory. As regards knowledge of modern chemistry and physics, opinion expressed was in favour of making them optional subjects.

The witnesses stated in regard to teaching, that Ayurveda must be taught according to old and usual methods and whatever standard is finally settled, must be uniform for All-India. The witnesses are for the proper control of teaching and practice of the systems which in their view, should vest with an Indian Medical Council with two autonomous sections, one for each, the Indian and Western systems. They recognised the need for compiling a Pharmacopoeia and for effecting proper standardisation of medicines with modern scientific methods. In their considered opinion, text books should be compiled in Sanskrit first, even for modern subjects and these may be translated into the regional languages later on. The medium of instruction should be in the provincial language.

In regard to private institutions, they expressed the view that they may be encouraged, provided they came up to a fixed standard. They are agreeable to the utilisation of the services

of the practitioners of Indian medicine for rural dispensaries after giving them an extra course of training in important subjects of modern medicine. In their view a synthesis of Indian and Western medicine is possible and should be attempted.

27th March 1948

(2ND DAY'S SESSION)

Doctors P. Kutumbiah and P. A. S. Raghavan representing the Indian Medical Association giving their evidence before the Committee stated at the outset that they are in agreement with the memorandum submitted by their Association. In their view, modern medicine is the evolutionary product of ancient medicine. They proceeded to state that only modern medicine can deliver the goods and the rest is a waste and any medical system which does not utilise the discoveries made by medical science during the last 70 or 80 years is detrimental to public health. Questioned if it is very essential for the public to resort only to Allopathic practitioners and not to Ayurvedic Vaidyas or Unani Hakims they replied that the people will go to any person who is able to cure their maladies and such a person may either be a Doctor Vaidya or Hakim. The following are the questions put and answers elicited from them. Dr. Kutumbiah acting for the most part as the spokesman.

Q So, considering all this is it not necessary to bring out the good points and salient features of the Indian systems and make them up to date, or allow them to continue in the state in which they are found today?

A They should be brought up to date but only on scientific lines.

Q Is it desirable to run separate Colleges for Homeopathy, Ayurveda and Unani?

A It is not only undesirable to run all these Colleges but it is also a waste of money and energy to do so.

Q Is there any objection for utilising the services of people who have some knowledge of medicine for the purpose of rural medical relief?

A Yes but they should be fully equipped with knowledge of medicine and health rules.

Q Was Western medicine resorted to by our old people and are all the people of the present served by this system?

A Never. About 130 years ago 100% of the people were resorting to Ayurvedic system. We emphatically say

that whatever is good in the ancient systems, should be put into practice and any knowledge of value should not be abandoned or lost.

Q. Should researches be conducted in these systems if Government gives help, and should the results thereof be checked with modern methods?

A. Yes, there should be research and also proper investigation instituted by Government. We have no objection to have the results checked with modern methods.

Q. Assuming that we now take up to our old systems, i.e. the one our old people practised in India, is it not desirable to incorporate into them some more good points from other systems?

A. The procedure suggested will take some 20 years to be achieved. Old as the systems are, they will not be suitable to modern conditions. If they are to be brought up-to-date as a satisfactory system to be of benefit to the people, it will take a long time.

Q. Do you think that the Vaidyas and Hakims who are in most cases unqualified and unregistered but are good enough to treat and carry succour to the people should be prevented from practising?

A. They know their own systems but the Government should see to it that they are also qualified and register them after that.

Q. Can you kindly tell us your idea of the kind of training now available to students of Ayurveda?

A. Attempts are now being made to synthesise the Ayurvedic and Unani systems with the Western, and if we are asked about the methods to be adopted for synthesis, we may say that there are different methods to achieve the same.

Q. Is it your view that indigenous systems should be kept pure and unadulterated with modern system?

A. Yes. This should be so, because the theories of these systems are different from those of the Western system.

Dr. Kutumbiah proceeded to observe that there should be definite qualifications in Indian medicine. The students passing out of the School of Indian Medicine should be fully equipped with the knowledge of people's health. Preventable diseases are still rife in India but in the Western countries, the incidence of

such diseases has become non-existent. They should be prevented and stopped in India also. Our budget is meagre in respect of public health.

In regard to the proposal to institute a six months' training to the practitioners of indigenous medicine to fit them in for interim medical relief schemes, they observed that it is useless to waste money on the teaching of non-modern subjects.

Q Can the indigenous practitioners be utilised for rural relief with additional training?

A Yes provided there is a long check maintained to prevent them from going beyond their competence.

Q Are there facilities for laboratory diagnosis in every place?

A No, but there are hospitals at District and Taluk Headquarters.

Q Cannot the practitioners of Ayurveda make use of them?

A Yes if they know how to utilise the information obtained from laboratory methods. The Vaidyas have had no training in laboratory methods.

Q Did you test the Western system before accepting it?

A This is like asking if aeroplanes etc. were tested before they were accepted. The basic medical theory of indigenous medicine is quite different from modern medicine. The use of modern appliances is possible only with the acceptance of modern philosophy of medicine.

The witnesses stated that they are in favour of having a Research Institute for indigenous systems where researches can be undertaken independently by the indigenous practitioners but results obtained should be checked by modern methods.

Q Can we work up one system of Medicine for India incorporating in it the best things from every system?

A Incorporate into one system all that can be scientifically established. The basic thing into which any thing is to be incorporated is not the indigenous system but the other way about. There should be incorporation into the modern medicine.

Q. You want one system based on proper scientific basis would you object to modern scientific system being added to indigenous system?

A. It is the duty of the State to prevent imposition on the public by quacks. If there must be the indigenous systems, then the Ayurvedic practitioners should be trained, qualified and registered. Then, there is no objection to their practising their own system. But there should be no dissipation of energies in teaching all kinds of systems.

Dr. Kutumbiah added that the way in which education is imparted in Schools of Indian systems of Medicine is wrong. The 'hybrid' mixture of modern and indigenous systems in those institutions is not desirable. If there is to be the indigenous system, he said, they may be taught separately.

Dr. Raghavan stated that with some training in preventive measures, the indigenous practitioners can carry out preventive work. He opined that there can be no objection to a pure Ayurvedic College. Whichever system is good, he observed, the Government and the public should take it up. In his view, they should have examinations and after their passing the same allowed to practice.

Dr. Subba Reddi Professor of Physiology Madras Medical College, giving evidence next said that, he has been trying to find out if the indigenous systems are capable of scientific proof. In his opinion, the Western medicine in India has a narrow outlook. In a contrast, the ancient medicine has had a wider outlook. He suggested that the texts of Indian medicine should be collected and examined carefully. Researches in these systems on modern lines should be conducted.

Dr. Subba Reddi is not in favour of using the old school Vaidyas for medical relief work, for in his opinion they are not acquainted with the preventive aspects of medicine. He would approve the proposal of making use of them for interim medical relief, if they are trained in modern anatomy, physiology, etc. In his view, the products of institutions where mixed training is given could be used for preventive work.

In regard to education in Indian medicine, he felt that there are hardly any really good teachers now and competent teachers must be made available. He expressed the view that the training in modern subjects like anatomy, physiology etc. along with the old systems will lead to confusion. He is not in agreement with Dr. Jivraj Mehta's opinion that all students should have the same basic training in general sciences and then branch off into modern and indigenous sections. Synthesis, he stated, is not desirable at present.

In his evidence *Dr A M J Shirazi* stated that there is very little pathology in Unani system. Great deal of pharmacological knowledge can be had from Indian medicine. He has not found out much information about preventive medicine in Unani. The Unani system in his view, has developed mostly on the curative side. He further stated that the students of Indian School of Medicine are freely using modern medicine in the form of mixtures. Modern and indigenous subjects are taught in the Indian School of Medicine.

Then the following Vaidyas and Hakims gave evidence —

Sri E V Krishnaswamy Naicker, representing Tamil Nad Siddha Vaidya Sangham

Dr C Somasundaram, L I M

„ K Raghavan, L I M

„ T V Radhakrishnan Shastri M A L I M

Ayurvedacharya Sri V B Nataraja Shastri

Sri G A Chinna, Hony President All India Siddha Vaidya Sangham Madura

Hakim Hafiz Mohammed Abdus Shakur Sahib, L I M

Syed Mohideen Ahmed Sahib

Shifa ul Mulk Haji Hakim Syed Maqdoom Ashraf Sahib

These witnesses expressed the opinion that in the first instance, there should be compulsory Registration for all practitioners

They expressed themselves in favour of having one Indian Medical Council with two autonomous sections for Indian and Western systems. In regard to the curriculum of studies, they stated that it should be the same all over India. The witnesses urged the need for compiling a standard Pharmacopoeia and stated that indigenous drugs must be tested and standardised scientifically.

They opined that the Universities should have direct supervision and control of teaching under the general direction of the Indian Medical Council. In regard to the duration of the course of training they stated that the degree course should be of five years. Some witnesses wanted two grades of training viz a lower course of four years and a degree course of six years. As for the qualification for undergoing training in Indian medicine they recommended Intermediate or its equivalent, with Arabic Urdu or Sanskrit, and Chemistry, Physics

and Biology for the degree course and Matric or its equivalent, with Sanskrit and science for the diploma course.

As regards the medium of instruction, they expressed the view that subjects of modern medicine should be in English, and Arabic, Sanskrit and Tamil respectively for Unani, Ayurveda and Siddha subjects. As for the text books, the witnesses stated that they should be in Tamil, Sanskrit and Urdu for Siddha, Ayurveda and Unani respectively.

They opined that it would be better to have a few well equipped institutions than many small and ill-equipped ones—both for degree and diploma courses. As an interim measure, they are agreed to the proposal of giving a six months' course for qualified practitioners and a two years' course to the unqualified, so as to fit them in for rural health service. Questioned if it is desirable to keep the different systems separate and wait for a time when they can be united to form into one system, except the witnesses representing the Siddha system, others gave their opinion in the affirmative. The former held that, the integration of the different systems is not possible.

Asked if they would like to have institutions for research in their systems with modern scientific methods to control the same, they unanimously opined that it should be so. They also expressed themselves in favour of instituting courses of training for the profession of Pharmacists and exercising control over the sale of drugs.

Dr. U. Rama Rao, who was examined at his residence, was asked if he approved the method of education followed in the School of Indian Medicine. He stated in reply that he thoroughly disapproved of it because it neither produces good Vaidyas nor good practitioners of modern medicine. He insisted that there should be institutions where Ayurveda is taught in its purity.

Asked if he approved of a synthesis of all the systems practised in India at the present time, he replied that a Synthesis of modern as well as indigenous medicines in India should be the ultimate object and he was sure that it could be fulfilled. This synthesised system, in his view, should contain the best from every system. There should be, he said, no difficulty about it because there is really no difference in the basic theories and principles of the various systems. The difficulty, in his opinion was that the teachers of the systems are not of proper calibre, and secondly, there are not sufficient number of teachers to teach many subjects.

28th March, 1948

(3RD DAY'S SESSION)

Mr C Narayana Swami Naidu, Special Officer for the Reorganisation of the Department of Indian Medicine with the Government of Madras in his evidence stated that, from the time of its inception in 1925 and uptill recently the duration of the course of training in the Government School of Indian Medicine was four years and in the previous year, with the conversion of the School into a College the course has been extended to five years. He stated that the affiliation of the institution by the University is under consideration and the curriculum for the collegiate course is not yet ready. Asked if the hospital facilities now available is sufficient for teaching purposes he replied that there is at present one hospital attached to the College and the question of expanding the same is being examined by the Government. In regard to the question of the constitution of an Examining Body of Indian Medicine he stated that the Government is now conducting the examinations. In his view the conduct of the examinations should be by the Government. He added that the Government may appoint a committee for the selection and appointment of examiners.

Questioned if the institution at Madras is called a College and if so, whether it is affiliated to the University, he said that the institution is a College and it does not necessarily mean that to be called a college it should be affiliated to the University. He said that when the College is affiliated to University, there will be in addition to the degree course, a diploma course also. He is of the view that the basic qualification for undergoing the degree course should be Intermediate. Asked about other teaching Colleges and Schools in the province the Special Officer stated that there are a number of them some of which have been recognised. They are not given any Government grants. These institutions have no hospitals providing for in patients treatment but have out door dispensaries attached to them.

He further stated that there are about 13 000 practitioners registered in the register of the Central Board of Indian Medicine and that there are still a very large number who are not registered. There are about 2 000 applications from practitioners for registration pending consideration. He added that there are two classes of registered practitioners viz, A & B. The former who are qualified not only in Medicine, but also in Surgery are appointed to Government jobs.

The Special Officer agreed that there should be one Medical Council for both the systems viz, the Indian and the Western, to control and regulate teaching and practice

In regard to the Ayurveda Shiromani course of the University of Madras he stated that it forms part of the diploma courses of the Faculty of Oriental Learning and the number of persons who have been the recipients of this diploma is about five or six. He added that there is also a degree course viz, Bachelor of Oriental Learning

In his view, the language of the books prescribed at present is not so clear as to enable the students to understand the ideas contained in them. Text books should therefore be prepared with full explanation. He expressed the opinion that researches in Indian Medicine should be conducted on modern lines

TRIVANDRUM

30th March 1948

(1ST DAY'S SESSION)

The evidence of the under mentioned physicians of Travancore was recorded

Dr L. A. Ravi Varma, Hon'ble Director of Ayurveda and Principal, Government Ayurvedic College, Trivandrum

Vaidyan N. Nilakanta Pillai, Retired Inspector of Ayurveda and ex Principal Government Ayurveda College, Trivandrum

, M. N. Kesava Pillai, Senior Pandit, Government Ayurveda College Trivandrum

, P. Parameswaran Pillai, Chief Vaidyan Government Ayurveda Hospital Trivandrum

, K. Parameswaran Pillai, Assistant Pandit Government Ayurveda College Trivandrum

, K. Ramakrishna Iyer, Assistant Pandit Government Ayurveda College Trivandrum

, K. P. Kesavan Vaidyar, Member Board of Examiners (Ayurveda) Trivandrum

The witnesses stressed the need for instituting research in Indian medicine and stated that there can be no objection to the utilisation of the methods of other sciences to check and prove the efficacy of Ayurveda. They had also no objection to the use by Vaidyas of drugs of proven value from other systems

In regard to Registration of practitioners, they stated that their State has a single State Council composed of practitioners of all systems, including Homeopathy and Dentistry. Out of the 17 members of the Council, 11 are practitioners of modern medicine. They said that the total number of practitioners, Ayurvedic, Siddha, Unani and Allopathic and unqualified, are about 6 000 in the State and urged the need for establishing an *All India Medical Council with a separate and autonomous section for indigenous medicine which should have control over the teaching and practice of them*.

As regards medical education they are for having a course of training extending to five years. The qualification for admission to such a course, in their opinion should be Matric with sound and sufficient knowledge of Sanskrit or S S L C, with 40% marks in Sanskrit. They suggested that after Matric, the students admitted for the course should undergo a year of pre clinical training in the basic sciences such as Chemistry, Physics and Biology, and also in Sanskrit. There must be an *examination in these subjects at the end of the course*. They recommended that the syllabus for this course should be on the lines of the prospectus of the Government Ayurveda College, Trivandrum. In their view the medium of instruction should be in the regional language. As for text books, the witnesses opined that till such time as all ancient Ayurvedic texts are translated into one common language (Hindi) with All India terminology, the Ayurvedic portions should be in Sanskrit and modern subjects in Hindi. They expressed the view that a minimum standard should be laid down in respect of teaching and only such institutions as satisfy this standard should be allowed to teach.

They are agreeable to instituting as an interim measure, a short course of training for qualified products of recognised institutions and a two years' course for those who are not so qualified to fit the existing practitioners in public health and rural medical relief schemes. They expressed themselves in favour of evolving one system of medicine by a synthesis of the Indian and Western systems. They all agreed that, there must be a standard Pharmacopoeia of Indian medicine and the standardisation of indigenous medicinal preparations should be carried out on modern scientific lines. They urged that there should be control on the sale of drugs and pharmacies and pharmacutists should be compulsorily registered and controlled. They are also of the view that there should be examination for the dispensers.

31st March 1948
(2ND DAY'S SESSION.)

In his evidence, Sri K. P. Sankara Pillai, Ex-Principal Ayurveda College, Travancore, stated that the qualification for admission to the institutions of Indian medicine should be raised to intermediate science with biology. Till such time as standard text books are available in a common language, the students should have knowledge of Sanskrit. At present the teaching staff of their College do not have medical work in the Ayurveda Hospital and therefore there is no relation between teaching and practice. The system of teaching modern subjects along with Sanskrit texts does not produce harmonious result, because teachers of modern subjects do not know Ayurveda and *vice-versa*. There should be really first class teachers who have knowledge of both systems. The Vaidyans have now become sellers of medicines. People do not, any more, prepare their own medicines. The book, Sahasrayoga, containing thousand prescriptions is used by Vaidyans in Travancore.

The witnesses to tender evidence next were :

Dr. M. K. Gopala Pillai, Director of Public Health, Travancore.

„ K. Raman Thampi, Retired Chief Inspecting Medical Officer, Travancore.

„ C.O. Karunakaran, Representative of modern medicine in the Travancore Medical Council, Trivandrum.

Capt. S. Christian, Registrar, Travancore Medical Council, Travancore.

They stated that no Government can run three parallel systems and they are for the synthesis of existing systems into one common system for the whole of India, which should include all that is best in all systems—modern and indigenous. Research in these systems, in their view, is important and the results of Ayurvedic research should be checked by modern methods and this should lead to the evolution of one system. As a measure of interim arrangement for affording medical relief to the masses, they are of the opinion that for persons who have been trained in recognised institutions, a six months' course or an examination will be necessary and for the untrained, a two years' course with an examination may be adopted.

Vaidyan V. P. Kunjan Pillai.

P Vasudevan Pillai, Inspector of Ayurveda.

Vaidyan K A Raghavan Pillai, Additional Inspector
of Ayurveda, and

„ R N. Nayak of the Ayurvedic Compound
Tinctures Ltd, Alleppey,

who were next examined agreed that Registration of Vaidyas should be compulsory and should be controlled by one Indian Medical Council with two antonomous sections—indigenous and modern In their view a Pharmacopoeia of Indian Medicine is necessary and the drugs should be standardised according to modern scientific methods As regards medical education the witnesses stated that there must be one standard curriculum for India, and the Universities should control the same subject to the general direction of the All India Medical Council The duration of the course, they said should be five years and the qualification for admission should be intermediate with physics, chemistry, biology and Sanskrit Marks in Sanskrit should be not less than 50 per cent As regards the medium of instruction, the witnesses held that it should be the regional language In their opinion, text books should be prepared by an All India Text Book Board In doing so the Board should see that the spirit of the ancient texts is not lost For the time being ancient texts should be in Sanskrit and modern subjects in Hindi As for the standard of teaching, all teaching institutions should conform to the minimum approved standard laid down by the Indigenous section of the All India Medical Council They are agreeable to a six months' course with an examination for the qualified, and a course of two years for the non qualified with an examination as an interim measure in order to fully utilise the existing practitioners for Public Health and Rural Medical Relief schemes The witnesses are of the unanimous opinion that there is need for research in the systems and they have no objection for the results and processes being tested with modern scientific methods without prejudice to Indian medicine In their view, the Ayurvedists should be given fullest opportunity to prove the value of their system

They are agreed that attempts should be made to evolve out of the existing systems one system of Indian medicine They are, however, opposed to the teaching of modern subjects and ancient texts side by side, as such a teaching does not, in their opinion, produce good results For this purpose, the teachers should know both the systems

In their view, the exercise of control on and the sale of crude and prepared medicines is very necessary, and the

remedies should be standardised. They further stated that compulsory registration of Pharmacies and Pharmacutists and compulsory qualifying examination for dispensers have to be enforced.

The witnesses to be examined next were:

Miss P. Lakshmi Amma, Acting Chief Vaidyan, Government Ayurveda Hospital, Trivandrum.

Vaidyan K. N. Kesava Pillai, Lecturer, Ayurveda College, Trivandrum.

" A. P. Sankara Pillai, Lecturer, Ayurveda College, Trivandrum.

" C. R. Ayyappan, Ayurvedic Physician, Trivandrum.

" K. G. Gopala Pillai, Trivandrum.

" Vedakkannan, Trivandrum.

" V. N. Damodaran Nair, "A" Class practitioner, Trivandrum.

They are agreed that Registration of the Vaidyas should be compulsory and their practice controlled by an All-India Council, with two autonomous sections—indigenous and modern. In their opinion, a Pharmacopoeia of Indian Medicine should be compiled and standardisation of medicines done with the help of modern scientific methods. As regards the control of teaching, examinations etc, the witnesses opined that they should be done by the University under the general direction of an All-India Board, and the curricula should be of uniform standard for all parts of India. They stated that the duration of training in Indian medicine should be five years and the qualification for admission should be intermediate science (Modern) with Sanskrit or the Mahopadhyaya of Travancore with one year's pre-medical course in physics, chemistry and biology. In regard to the medium of instruction, the witnesses are for the adoption of the regional languages. As for text-books, they are of opinion that special texts should be compiled in Hindi. Sanskrit texts may be included but expounded in Hindi. In their view, there must be a few well-equipped and adequately staffed institutions. Only such institutions as can come up at least to the minimum standard laid down for them by the Board should be allowed to work. The witnesses opined that as an immediate measure and in order to utilise the existing practitioners for public health and mass medical relief work, a six months' course with an examination for the qualified persons of recognised institutions

and a two years' course in Ayurveda, modern preventive medicine and public health with an examination for the unqualified will be very necessary

In their view, a synthesis of the Indian and Western systems is practicable and it should be taken up as early as possible. They are agreed that research is essential for the progress of Indian medicine and the same should be done on modern scientific lines. They suggested that the Central Research Institute be located in Travancore State. The witnesses urged that the control on the sale of drugs should be exercised and their standardisation is essential. Compulsory registration of Pharmacists and Pharmacies is also equally necessary, and the compounders should qualify themselves for their profession.

2nd April 1948

(3RD DAY'S SESSION)

In his evidence, Ashtavaidyan *Sri N S Moose*, a member of the hereditary Ashtavaidyan family of Vayaskara Kottayam Travancore State stated that the members of the Vayaskara Moose family are exempted from Registration by the order of His Highness the Maharaja of Travancore. However he is willing to get himself registered if necessary, in an All India register. They (the Ashtavaidyas) do not ask for any remuneration for services rendered by them but are given *jagirs* by the State. He further stated that he is willing to part with prescriptions inherited by him from his ancestors for the use of the public without any remuneration. He expressed the view that suitable control should be exercised over Pharmacies.

ERNAKULAM (COCHIN)

4th April 1948

In his evidence *Dr T Verghese*, Chief Medical Officer, Cochin State stated that he has no personal knowledge of cures of paralysis effected through indigenous treatment, but has heard of some. There is an impression among the people that the Ayurvedic treatment for rheumatic fevers is more efficacious. At the same time there is a demand for modern type of hospitals in spite of Ayurvedic hospitals being there. Generally, for acute cases people prefer modern medicine and Ayurvedic for chronic ones. He proceeded to observe that the Ayurvedic cures deserve investigation and such methods as Pizhichal, oil bath, massage, etc., need proper study. He suggested among other things that

- (i) It would be desirable to have one system of medicine in India, and the unqualified physicians should be swept out altogether.
- (ii) The Ayurvedic practitioners must be educated on the right lines in the basic sciences, and then taught Physiology, Anatomy and General Pathology, before being taught Ayurveda.
- (iii) Research should be undertaken in Ayurveda by the best people. For minor ailments Ayurvedic treatment is cheap, but not for serious ones.

He stated further that in rural areas there are subsidised dispensaries of the Western system. An honorarium of Rs 60/- per month to the practitioner, and Rs 1,000 to Rs 1,200 a year for medicines are the expenditure incurred now in this regard. There are, besides the above, 14 hospitals with a minimum of 40 beds each, and 22 dispensaries with a minimum of 12 beds each. The annual budget of the Medical Department is Rs 18 lakhs. This is distinct from the grant made for public health.

Dr V A G Menon Director of Indian Medicine for Cochin State, giving his evidence next, stated that there are at present 10 hospitals with bed strength varying between 12 and 40. In addition to the above there are 2 hospitals maintained by local bodies, and 45 out door dispensaries. 2 Visha Vaidyasalas and 48 grant in aid dispensaries in the State. A sum of Rs 300/- each for Vaidyas and Rs 600 for medicine per annum are being given. Vaidyas belonging to both the sexes are appointed to these institutions.

The evidence of the following Vaidyas was then recorded

- Sri M K Vaidyar, Tellichery
- „ P Vasudevan Nambeesan, Trichur
- „ T A S Nambeesan, Ernakulam
- „ T Achuta Warriar, Tripunittura
- „ R S Kamath, Government Ayurvedic Hospital, Ernakulam

Vaidya Guru M R Bhat, Manipal, Udipi, (S Kanara)

They stated that there was no system of Registration of Vaidyas in their State and that compulsory Registration should be introduced. In regard to the control of practice and teaching, they are in favour of the establishment of an All India Medical Council with two autonomous sections—Indian and Western—with provision for proper provincial representation being made on the

same As regards the curriculum of studies, they are of the view that the basic standard should be the same all over India and some variations can be effected by the Universities where found necessary There was difference of opinion among the witnesses in regard to whether there should be two courses of training one of five years duration and the other of three or four years for rural practitioners They however agreed in the end that the shorter course may be given a trial for ten or fifteen years There was also difference of opinion among them if matric with a working knowledge of Sanskrit or a thorough knowledge of Sanskrit with a working knowledge of science subjects upto matric standard, should be the basic qualification for admission for undergoing training in Indian medicine The witnesses are for having common text books on an All India basis which should be compiled in a common language preferably Hindi giving Sanskrit quotations wherever necessary in the original General agreement was expressed in regard to affording six months course for qualified persons and two years for the non institutionally qualified as an interim arrangement to provide medical relief to the masses As regards research the witnesses are of the view that the Indian systems must be interpreted in terms of the modern and not *vice versa* in the beginning and scientific methods should be employed for the same The different treatments of Ayurveda viz psychological metaphysical mantra chikitsa yogic rasayana and rejuvenation as well as the claims made for beneficial treatment of epilepsy by baths in Alwaye river should be properly investigated on modern lines In the view of the witnesses a Pharmacopoeia is necessary and in compiling it scientific methods must be employed They also expressed the view that the Pharmacies and Pharmacists should be controlled Stating that there must be an ultimate synthesis of the Indian and Western systems of medicine into one system, the witnesses opined that the teaching of modern and Ayurvedic medicine should not be done as separate subjects Attempts should be made to harmonise them and bring out suitable common text books The teachers must know both Ayurveda and modern medicine

TRICHUR (COCHIN)

5th April 1948

The following witnesses were examined and their evidence recorded

Sri Kalakanta Menon	}	Hereditary Vaidyas
Narayanan Moosad		
„ Ashtavaidya Eravpurathu Madhava		

The witnesses expressed the view that researches in Indian medicine is a necessity and it should be conducted on modern scientific lines. They agreed that the Registration of practitioners should be made compulsory and the control of practice and teaching should vest in an All-India Medical Council constituted on an elected basis with two autonomous sections,—Indian and Western—till a single unified system is evolved. In their view, the curriculum of studies of Indian medicine should be of uniform standard all over India, and the text books should be compiled by those who have studied both Ayurvedic and Allopathic systems of medicine. They stated that the text-books should be written in Sanskrit, at least for South India and expressed agreement with the view that there should be a reliable Pharmacopoeia of Indian Medicine. In their view, the Pharmacies should be controlled and the remedies should be standardised on modern scientific lines.

BANGALORE

7th April 1948

(1ST DAY'S SESSION.)

Mr. A. Nirvane Gowda, Secretary to Government of Mysore, Education and Medical Department, and ex-officio Chairman of the Committee of Indigenous Systems of Medicine, giving his evidence, stated as follows.—

The Sri Jaychamarajendra Institute of Indian Medicine is a Research Institute and has a hospital attached to it with about 48 beds now. The bed strength of the hospital may be raised to 125 shortly. Even though the main purpose for which the Institute was founded was mainly to promote research at present no researches are being conducted and the Institute is concerned with medical relief. It may not be possible to develop the Institute as a research centre in view of the heavy expenditure that may have to be incurred for the purpose and the amount now being incurred for medical relief is itself very much. The Government will, however, have no objection to develop research, if the Central Government would contribute substantially for the same.

In his view, the Registration of the practitioners of Indian systems should be made compulsory. He proceeded to state that Mysore has a Medical Council for modern medicine. The Mysore Medical Degree (Allopathic) is not recognised by the All-India Medical Council. At present, the two departments.

Allopathic and Indian are separate. There is no Head for the Department of Indian Medicine. The Government Ayurvedic and Unani College at Mysore and the Bangalore Institute of Indian Medicine are under two different Committees. The Public Health and Medical Departments are separate. There is a separate officer who is in charge of the hospital for Women. Mr Gowda stated that the medicinal needs of the hospital attached to the Ayurvedic and Unani College at Mysore and the Institute of Indian Medicine at Bangalore are met by separate Pharmacies attached to these institutions. In his view, a Central Pharmacy for the supply of genuine medicines is necessary.

Furnishing further details, he stated that in addition to the hospitals attached to the Ayurvedic College at Mysore and the Institute of Indian Medicine at Bangalore there are two Government dispensaries at the latter place, one in each for Ayurveda and Unani. There are also 182 Ayurvedic and 46 Unani dispensaries maintained by the local bodies in the State. He concluded by saying that the Government is interested in developing the indigenous systems of medicine on a progressive and scientific basis and harness them for solving the medical relief problems of the State.

The evidence of the following practitioners was then taken

Hakim Murtuza Khan Senior Physician, Unani Section,
Sri Jayachamarajendra Institute of Indian
Medicine, Bangalore

Dr A Sitaram Shastri M B, B S Medical Officer in
charge, Sri Jayachamarajendra Institute of
Indian Medicine Bangalore

„ N Lakshminarayanan, Private Practitioner, Ban-
galore

Hakim Mir Ghaus Ex Senior Physician Government
Ayurvedic and Unani College Mysore

All the witnesses are agreed that the registration of practitioners of Indian medicine should be made compulsory and the control of teaching and practice should vest in an All India Medical Council with two autonomous sections. They stated that the length of course of training in Indian medicine should be five years viz, four years for teaching and one year for clinical study. Opinion among the witnesses was divided in regard to

the basic qualification for admission to such a course. Some held that it should be inter science with regional language and the others were for S S L C with Science and a classical language. In their view the medium of instruction should be the regional language of the places where the institutions are situated. The text books in their opinion, should be compiled for All India, in the first instance in Hindi or Urdu and thereafter translated into regional languages. In regard to the control of teaching they opined that, subject to the general control of the All India Medical Council, teaching institutions should be under the immediate control of Universities.

The witnesses are in favour of having a few well equipped and staffed institutions with adequate hospital facilities, instead of a large number of ill equipped and under staffed ones. They urged that a minimum standard should be laid down by the Universities for their recognition.

For meeting the immediate medical needs of the masses, the witnesses are agreed that qualified persons from recognised institutions should be given a six months' course and for the unqualified, a training for two years, and utilise their services as an interim measure. All the witnesses are unanimously of opinion that synthesis of the Indian and Western medicines should be worked out and adequate provision made for promoting research on scientific lines in these systems. In their considered view, a reliable and authoritative Pharmacopoeia of Indian medicine should be compiled and the remedies standardised on a scientific basis. They are also agreed that the Pharmacies of Indian medicine should be controlled and the Pharmacists properly trained, registered and controlled.

The evidence of the following witnesses was next recorded

Dr. N. Gundappa, L A M S, L M P President, Ayurvedic and Unani Graduates Association, Bangalore

„ M. Mahadeva Sastry, L A M S Medical Officer, Ayurvedic Dispensary, Government Electric Factory, Bangalore

Mr. P. V. Narasingha Rao, M. A (Hons), President, Ayurvedic Congress, Bangalore

Vaidya K. N. Chandur

, D. K. Baidwarj Vaidyaguru

Kaviraj Subban Singh

Majority of the witnesses are in favour of enforcing compulsory registration of Vaidyas and Hakims and for the control of teaching and practice by an All India Medical Council, having two autonomous sections. In their agreed opinion an authoritative and reliable Pharmacopoeia should be worked out and drugs standardised. They are also for the laying down of a standard curriculum applicable to All India. The basic standard of education for the proper study of Indian medicine in their view, should be at least SSLC with natural sciences and Sanskrit. In regard to the length of the course two views were expressed viz (1) that there should be two courses one of three and the other of five years duration and (2) it should be only five years. They stressed on the need to maintain uniformity in the standard of text books for Ayurveda and Unani for All India for compiling them in Hindi and Urdu and for their translation into regional languages at a later date. In their view the medium of instruction in the institutions of Indian medicine should be the regional language. The witnesses are agreed that a synthesis of the Indian and Western medicine should be evolved. One system of medicine for the whole country should be introduced. They are of opinion that it is possible to harmonise modern Physiology and Pathology with the Ayurvedic theories. Research in Indian medicine should be organised on scientific lines and the value of the therapies with mantra and yoga among others should be properly investigated.

The witnesses to be examined next were

Dr Subba Rao Retired Senior Surgeon Government of Mysore

V C Monterio Senior Surgeon Government of Mysore

Dr Monterio in his evidence gave statistics of medical relief through the modern system in the State and said that he had no objection to synthesising all the three systems into one scientific system of medicine for the country.

Dr Subba Rao observed that Ayurvedic dispensaries are not popular and the crying need of the time is the want of modern dispensaries and not the former. He stated that many surgical cases are spoiled by Ayurvedists. Appendicitis tubercular joints etc are some of them.

The two doctors opined that a six months special course would be useful for those qualified from recognised institutions for fitting them in for Government service in rural areas. The

administration of modern and indigenous medical relief, said Dr Monterio, should be brought under one direction, and an assistant officer of Ayurveda may be in charge of the latter section. The witnesses held that modern subjects such as Anatomy, Physiology etc., should be incorporated in Indian medicine.

In their view, there should be registration of indigenous practitioners. Both the witnesses are in favour of adopting Hindi as the language of text books for modern medicine too provided the technical terms are kept intact as at present and for instituting scientific research in the Indian systems.

Mrs G Sumati Taranath B A L T, Vaidyaguru, Mahopadhyaya President All Karnatak Provincial Ayurveda Mandal, deposing next, expressed the view that the registration of Vaidyas should be optional. She is in favour of establishing an autonomous section in the All India Medical Council for Indian medicine to control and direct the teaching and practice of the system and also for compiling one common Pharmacopoeia for All India. The control of education in so far as it relates to Ayurveda she said, should be in the hands of Universities and the qualification for admission of students to the course should be S S L C with Sanskrit. The duration of the course should be four years plus a year of apprenticeship either in a hospital or with reknowned practitioners of Indian medicine. As for the medium of instruction, she expressed the view that it should preferably be in Hindi and not the regional language. In regard to the language of the text books she felt that they should naturally be in Hindi. Original Sanskrit books should be prescribed for post graduate course. In her opinion, it is not possible at present to arrive at a synthesis. She is in favour of instituting all round research in Indian medicine and for the application of scientific methods for the purpose. She concluded her evidence by stating that there should be control over the sale of drugs and Pharmacies.

Dr A Lakshmi pathi, examined *Prof K V Iyer* Physical Culture Correspondence School and Vyayama Sala and recorded his evidence.

Q Do you treat patients ?

A Yes, for some diseases.

Q How many beds have you ?

A I have accommodation for 12 patients.

Q What diseases do you generally treat ?

A I treat cases of asthma bronchitis diabetes gastro intestinal disturbances joint affections mental disorders and in particular neurasthenia We also specialise in the treatment of paralysis

Q Do you keep any records of cases treated in your institution ?

A Yes We keep records of weight and measurements of the body of our patients

Q Are you in favour of employing modern scientific methods of diagnosis and treatment for testing your results ?

A Yes We employ them

Q Are you in favour of research ?

A Yes

The next witness to be examined by Dr A Lakshmipathy

Sri A N Bhattacharya Secretary Ayurveda Sevashram
Basavangudi Bangalore

Q What are the aims and objects of your institution ?

A Seva or service to the public through Ayurveda and to encourage the hereditary Ayurvedic Physicians, who not only follow the classical system of Charaka Susruta and Vaghbata but also receive their training through guru paramanas particularly methods of treatment by Yoga Mantra and Yantra

Q Are you utilising the process of Yoga in treatment ?

A Yes By employing Dhyana Yoga we treat certain patients suffering from insomnia anger (excitement) etc Our observations are that the patients are greatly benefitted by this treatment Mantra Yoga is useful in the treatment of sprain scorpion stings etc In scorpion sting 50% cure may be expected In certain cases the sting breaks inside and until it is removed the pain cannot be relieved

Q Can it be taught to others or only you alone can practice it ?

A It can be taught to others but that can only be done to persons who are suitable and on specially selected days such as Grahana Kala The students should stand in water and perform Japa as a part of their initiation There are books on Mantra Sastra which

are of doubtful value. Collection of books is necessary but this must be done by experts. Research in these methods can be done on modern scientific lines. Mantra-Sastra is a science and not a belief. The application of Talisman or Yantra inscribed with certain letters and figures such as Veerabhadra-Yantra, Hanuman-Yantra, Narasimha-Yantra, etc. gives relief particularly in children who are disturbed in sleep, balagraha, infantile convulsions, and epilepsy. Percentage of cures by this method is about 35 %. It does not work in adults. The success of the use of Yantra depends on the power or capacity of the person who applies the same. These methods are not superstitious. We can prove them.

He further stated that, there are some very valuable manuscripts in Kannada country which belong to Jaina-Sampradhaya written in a code language, which can be understood only by experts. Some of them have been printed and a further search has to be undertaken to discover more of them. A large number of the manuscripts have been already deteriorated and the few available will soon be destroyed due to neglect unless they are secured and preserved.

MYSORE.

9th April 1948

FIRST TO BE EXAMINED WERE :

- Mr. P. Sitaramiah, President, Municipal Council, Mysore.
- „ N. S. Hirannayya, Commissioner, Municipal Council, Mysore, and Vice-President, Government Ayurvedic and Unani College Committee of Management.

They are for the registration of Vaidyas and Hakims being made compulsory. They stated that the Municipal Council of Mysore City spends Rs. 2,000 a year for medical relief through these systems, which is distributed as a subsidy to about six local practitioners. Besides this, there is a Municipal Ayurvedic dispensary. People prefer Allopathic system to Ayurveda for certain diseases and for some others they prefer Unani or Ayurvedic. The first thing to do in order to improve the systems is to see that the Ayurvedic and Unani practitioners are properly trained and qualified and given a good status. In their view, there should be good teaching institutions—well-equipped and staffed and affiliated to the University. They are for proper standardisation of indigenous drugs.

Doctors *B T Krishnan* M B B S, Principal, Mysore Medical College and *E Ananta Rao* Professor of Hygiene, Mysore Medical College and Health Officer Mysore Municipality were next examined. In their view, the practitioners of indigenous systems should be registered. They stated that, the number of practitioners of indigenous medicine practising in the State will be about 8 000. The preparation of an Indian Pharmacopoeia and standardisation of the drugs scientifically are in their opinion, necessary. In regard to synthesis of the two systems into one they said that the ideal of all systems of medicine is the same. The discoveries of all sciences should be pooled together and there must be one scientific medical system. They strongly opined that research in Indian system is necessary. In regard to the imparting of training in these systems they maintained that it is a wrong policy to give training in indigenous medicine. Schools of indigenous medicine should be abolished and the money now spent on them devoted to Research.

However, as an interim measure they are for the utilisation of a few practitioners after giving them training in preventive medicine. In their view the majority, are not fit for the purpose, on account of lack of proper previous training.

The following Vaidyas then gave evidence

Ayurveda Vallabha Sri M G Singar Iyengar

Rajavaidya Chandra Bhan Singh

Vaidya Partha Narayana Pandit

„ B V Pandit

The witnesses are of opinion that the course of training for Ayurveda should extend to five years and the medium of instruction should be in Sanskrit and vernacular. This will constitute the higher course. There must also be a lower course of two years in Ayurveda open to practising Vaidyas who have not received any training and the medium of instruction for this course should be in the vernacular. This will enable them to render a better type of medical aid. The curriculum of studies in both the cases should include domestic medicine. Text books should be made available in vernacular. For the former course the standard of the curriculum of studies should be high and the teaching should be done by eminent specialists, anatomy physiology and surgery can be taught to supplement and not supplant the originals in Ayurveda. As for medical relief, the witnesses stated that, hospitals with provision to afford Ashtanga Vaidya staffed with specialists should be opened, incorporation of other systems

in their view, will be justifiable only where Ayurveda is deficient. Discussing medical relief, they stated that there must be one Ayurvedic dispensary for a radius of 5 miles; treating centres for special diseases should be opened, and itinery medical units organised. For the treatment of common and simple ailments a domestic medicine box should be worked out and popularised among the masses. Urging on the need to institute research in Ayurveda, the Pandits said that, the Ayurvedic texts and manuscripts should be collected, corrected, translated and published by eminent Vidwans and Vaidyas. Survey and identification of drugs should be undertaken and to start with a materia-medica of the common drugs should be prepared. Clinical research is the most important work that has to be undertaken immediately. To chart out the results obtained by clinical research in the language of modern medicine all modern appliances should be utilised.

In the opinion of the witnesses, clinical and therapeutic researches are of greater importance than chemical and pharmacological. They held that the investigation of drugs for their active principles will not be of much use. Single drugs and compound preparations should be tested as they are used. Standardisation of drugs and the preparation of a Pharmacopoeia, are in their opinion, very necessary. They urged that the following also need close scientific study:

Domestic Medicine.

Nursing in oriental ways.

Sick dieting.

Nutrition.

Prophylaxis.

In regard to medical registration, the first three witnesses suggested the opening of a preliminary register and enter therein the names of all the practising Vaidyas, as a first step. The actual registration, should, in their view, follow after a few more years of education and due notification. They are for registering all practitioners of five to ten years standing and their classification under different classes. Sri B. V. Pandit did not share this view. They recommended the following general measures to improve these systems :

(i) Raising of the pay and status of the Vaidyas, (ii) the preparation of a map noting treating institutions in every five miles radius, (iii) survey of drugs and herbs for collection, growing etc. (iv) the training of nurses and compounders; (v) visits and advise by experts to the masses in rural areas, (vi) collection of All-India

statistics of clinical research (vii) the establishment of State managed Pharmacies (viii) working out a domestic medical box and popularising the same (ix) control of the sale of herbs and drugs (x) the creation of several selling centres for the above (xi) the creation of a separate Department of Indian Medicine (xii) the translation of the ancient texts of medicine into vernaculars (xiii) increase of beds in hospitals of Indian medicine and (xiv) to afford training facilities for students and practitioners

Dr M Ramchandran M B B S F I M (Madras) Principal Government Ayurvedic and Unani College Mysore in his evidence stated that the Registration of Vaidyas and Hakims should be compulsory and there should be control over teaching and practice exercised by an All India Medical Council with two autonomous sections—Indian and Western

A Pharmacopoeia of Indian Medicine compiled on scientific lines is necessary. The teaching of Indian medicine should be under the control of Universities

Dr Ramchandran favours institution of two courses of training viz (i) a four years diploma course open to those with SSLC qualification this course he stated will only be a temporary measure and (ii) a five years course open to those with intermediate science and Sanskrit qualification. This would correspond to the M B B S course. There should be a standard curriculum of studies prepared on an All India basis. The medium of instruction for these institutions he opined should be the regional language. In his view the text books for these courses should be written in Hindi first and then translated into regional languages. As for the quality and number of teaching centres he said that only institutions which can satisfy at least the minimum conditions laid down for them should be allowed to exist. To ensure proper teaching the teachers of these institutions should have good knowledge of both systems

He agreed that a six months course for the qualified and a two years course for the non institutionally qualified practitioners should be instituted so that the existing practitioners may be utilised for mass medical relief work as an interim measure

In regard to research in these systems he said that it must be conducted on modern scientific lines. He expressed himself in favour of working out a synthesis of the Indian and Western systems. He further stated that there should be control on the sale of indigenous drugs all drugs offered for sale should be

standardized; -pharmaceutists should be compulsorily registered; and persons dispensing drugs should pass a qualifying examination.

Sri Swami Vaidyanathendra Bharathi in his evidence, stated that, the Vedic theory of medicine is different from classical Indian medicine of Charaka, and the rest. The latter deals only with the humoral, and the former, with harmonial. The Vedic theory is complete but needs exposition. The classical Ayurveda needs supplementing. If these are not still complete, they can be supplemented by modern methods. He is not against borrowing useful knowledge from others. He complained that Ayurvedic medicines are being prohibited from being sold to public on the score of their containing cumulative poisons. Yet, he said, some Governments have tried these medicines, and commended them.

Hakims Jainur Abudin and Ghouse Mohiyuddin, lecturers in the Government Ayurvedic and Unani College, Mysore deposing next, agreed that Vaidyas and Hakims should be registered. They stated that the indigenous practitioners should be given the same rights as are enjoyed by the Allopaths. They are prepared to incorporate parts of the Western system into theirs. They are also for adopting regional languages as medium of instruction in institutions of Indian medicine. In regard to text books, they expressed the view that, they should be in Arabic and such portions as are not in the original texts can be in Urdu. The qualification for admission to Unani medical institutions should be equal to Maulvi Fazil in Arabic or Persian. They are for a full five years, course with an additional six months, for the study of basic sciences. Research, in their opinion, should be on Unani lines. They have, however, no objection to have the results of such researches checked by modern methods. They are also of opinion that a synthesis of the two systems is possible and should be attempted.

In conclusion they stated that there should be control over the sale of indigenous drugs; drugs offered for sale should be standardized; Pharmaceutists should be compulsorily registered, and persons dispensing drugs should pass an examination.

Ayurveda Vidwan Dr. N. S. Subramanya Shastri, L.A.M.S. and L.M.P. in his evidence claimed that Ayurveda is a revelation and inspired. Revelation, and inspiration, in his view are above the misconceptions imposed on us by our deceptive senses. Ayurveda stands as a test for other medical sciences. It can only be tested by results, and not by modern methods. Researches should be developed on Ayurvedic lines. He however

has no objection to have the results of such researches checked by modern scientific methods

Ayurveda Vidwan Shri T K Narasimhayya, L A M S stated in his evidence that the registration of practitioners of Indian medicine should be made compulsory and qualified persons should be allowed to conduct post mortem. He favours an All-India Medical Council for controlling and regulating the practice of these systems. In his view, a common and standard Pharmacopoeia of Indian medicine is essential. He is for making the course of study in Indian medicine of five years duration. The qualification for admission for the courses, according to him, should be S S L C with Sanskrit and Science. The medium of instruction, should be in English.

In conclusion, he stated that there should be control on the sale of indigenous drugs. Drugs offered for sale should be standardized. Pharmaceutists should be compulsorily registered, and persons dispensing drugs should pass an examination.

Doctors J S Krishnamurti, M B B S and A S Dathu Rao, representing the Indian Medical Association, in their evidence stated that they agreed with the memorandum of the Indian Medical Association.

Dr Krishnamurti expressed a fear that a six months training to Vaidyas and Hakims will make them consider themselves to be fully qualified Allopaths. But, he admitted, the indigenous practitioners are already making use of all modern drugs—most of them being ignorant of the potency of these drugs.

Both agreed to the idea of evolving a synthesis of the two systems into one.

(2ND DAY'S SESSION)

10th April 1948

Shri T Krishnamachariar of Shri Yogasala, Jaganmohan Palace, Mysore, gave a demonstration of Yogasanas and Yogic methods of treatment. The following are the questions asked and answers elicited from him.

Q What are the advantages of Yogic treatment over other methods?

A The Yogic methods of treatment generally relate to Asanas. The objects for which the Asanas are practiced are generally,

(i) To preserve health (Arogyam) and (ii) to prevent ill-health.

- (ii) To secure light and free movement of limbs (Anga-laghavam) and to make the body keep light.
- (iii) To obtain freedom from injury due to extremes of heat and cold and to withstand the 'duals' (Dwandwa) such as love and hate, pleasure and pain etc.

But, the real object of practicing the Asanas, he said, is to secure a posture suitable for meditation.

Q What diseases do you treat by the Asanas?

A The diseases that are treated here are classified into three kinds viz, (i) Manasa diseases relating to the mind

(ii) Andriya diseases relating to the senses

(iii) Shareera or physical diseases relating to the different organs and tissues of the body.

Q How do the Asanas act in these diseases?

A They act in 3 ways (i) Samyoga—by promoting growth
(ii) Bhodana—by promoting resolution
(iii) Nissarana—by promoting elimination

Continuing he said that by proper control of inhalation and exhalation or by what is called Pranayam, the action of the endocrine glands is stimulated or depressed according to the particular kind of Asanas practiced. We have also what is called Yoga Vinyasam or gradation of Yoga-Asanas. According to the capacity and vitality of the subject, the different kinds of Yogic exercises are prescribed.

- (a) Exercises in lying postures for the sick, weak and debilitated,
(b) Sitting exercises for the moderately strong,
(c) and, standing exercises for the strong and healthy.

Demonstrations by several persons of different ages and strength in a military style like drill are to be discouraged. Although in the demonstrations given by several boys and girls, the methods of military drill are adopted, regulation of breath is most important for all these postures.

Q Is it a new method of yours ?

A No They are of Patanjali

Q Please explain Prathipaksha and the different processes?

A Prathipaksha means converse process The commentator explains the three processes viz ,

- (i) Anuloma—Downward direction
- (ii) Pratiloma—Upward direction
- (iii) Viloma—converse direction to both (i.e) the opposite direction

In performing the Asanas, the action of the muscles in various directions should be carefully observed and in order to counteract any undue strain on any part of the body the converse processes are also to be practised One particular Asana is to be considered as the converse of another

HYDERABAD (Dn)

11th April 1948

The undermentioned practitioners were examined and their evidence recorded

Maulvi Hakim Syed Bazlur Rahman Vice Principal,
Nizamia Tibbia College

Ilyasin Professor, N T College and Resident
Medical Officer Nizamia Unani Shafa Khana

Hakim Syed Syed Ali Sahib Ashufta Senior Pro-
fessor and Senior Unani Tabib N T College

Hakim Mohd Mahmood Ali Unani Pharmacy,
Deputy Director Unani Dept

Abdus Sattar Supdt Unani Medical Stores

Abdul Ali Professor N T College

Syed Ali Hussain Assistant Director Unani
Department

Pandit Gaya Parshad Sastri Acharya President Hydera-
bad State Ayurvedic Congress

Vaid Parmeshvar Prashad Ayurveda Visharad Superin-
tendent Govt, Ayurvedic Dispensary, Himayat
Nagar

Hakim Shanker Parshad Secretary Ayurvedic Advi-
sory Board H E H the Nizam's Government

- 1 Vaid Ram Niwas Sharma Ayurvedic Visharad Lecturer,
 Ayurvedic College
 , Narhar Reddy, Ayurvedic Vishard
 , R N Mehta
 , Venkat Rao Dattar Swami Govind Thirtha Vaidya
 Vishard
 , Vishwanath Kesari
 , Jayawant D Moray
 „ Rambhandra Rao Saman Goukar
 , Digumber Rao Saman Goukar
 Kanlaker Indupurker
 , Keval Ram Gupta
 Dattatreya Nagorao Kullarni

The witnesses stated that there is registration in Hyderabad State. All are in the favour of compulsory registration. In regard to the control of practice they opined that an All India Board with two autonomous sections—indigenous and modern should be established.

They are unanimously agreed that there should be a Pharmacopoeia of indigenous medicine and the standardisation of drugs is necessary. In their view an Urdu University should supervise the preparation of curriculum of studies which should be uniform for All India. The length of the course according to them should be of five years duration and the basic qualification for admission should be intermediate science with Arabic and Persian or Sanskrit. These are not necessary for ordinary medical studies. Research students may learn the classical languages or possess an equivalent oriental degree with one year's pre medical course in science viz physics chemistry and biology.

They expressed themselves in favour of making regional languages as the medium of instruction. In their view, few well equipped institutions are better than many smaller ones. They agreed that as an interim measure, a six months course for qualified practitioners will be necessary to employ them for public health and medical relief work. All the witnesses are unanimous in regard to the need of research and the adoption of modern scientific methods to check the results and methods of the systems. As for synthesis the opinion among the witnesses was sharply divided, some asserting that it is not possible of achievement. But the majority are in favour of synthesis.

All the witnesses are for exercising control over Pharmaceutical concerns, the standardisation of indigenous drugs, the training and registration of Pharmacists and compounders

BOMBAY

(1ST DAY'S SESSION)

19th April 1948

Dr Chaman Lal Metha and Dr Rochiram A Amesur who represented the Indian Medical Association, tendering evidence stated that they are in favour of research as there are many things in Ayurveda which may be good. If the Ayurvedic way of approach is proved to be sound and scientific, there will be no objection to absorb the same into the modern system. Synthesis can only follow research. Their chief objection is against the teaching institutions of Ayurveda, as in their opinion, they only produce inferior types of Allopaths. Research may be conducted by Ayurveds and Hakims, but results obtained therefrom must be checked by modern scientific methods. They further stated that their ideal is that for rural areas, the man in charge must be fully qualified with much better training as he has to look to so many things. Persons of low qualifications will not be able to give proper advice to the people. For the interim period, however, qualified indigenous practitioners may be given a six months' course and their services utilised. Exemption from this training may be given to persons who have done this course as a part of their regular training. This exemption should be given by the regional Governments. They are strongly of opinion that the teaching in the present day indigenous schools and colleges must be improved.

Hakim Shamsul Islam, Joint Secretary, Board of Tibbia College, and *Shirfa ul Mulk Hakim Rashid Ahmad Khan* tendering evidence next stated that the registration of Vaidyas and Hakims should be made compulsory and the control of practice and teaching should vest in the Indian Medical Council which should have two autonomous sections Indian and the Western. In their view, an authoritative and reliable Pharmacopoeia is very necessary and the standardisation of remedies should be effected through modern scientific methods. The teaching of Indian medicine should be the responsibility of the Universities.

They are for instituting two grades of training, viz, six and four years courses and recommended that the curriculum of studies for these should be the same all over India. The basic qualification for admission to the courses suggested, in their opinion, should be matriculation or S S L C or Maulvi with Arabic,

Persian or Urdu and the medium of instruction should be in Urdu for the four years' course and Persian or Arabic for six years' course. The language of the text books, they urged, should also be in Urdu. They expressed themselves in favour of having few institutions of a high standard, rather than many small ones.

In their view, a six months' refresher course should be given to the qualified practitioners to fit them in for medical relief schemes. The subjects for this course should be those not already covered in their main course. They are not for a two years' training for the unqualified. In regard to research in their systems, they have no objection for the employment of modern scientific methods. The witnesses expressed themselves against the synthesis of the two systems into one. They are of the opinion that there should be control on the sale of indigenous drugs; drugs offered for sale should be standardized; Pharmacentists should be compulsorily registered, and persons dispensing drugs should pass an examination.

Col. M. G. Bhandari, C.I.E., Surgeon General with the Government of Bombay, tendering evidence next stated that the Government of Bombay has given two lakhs of rupees as non-recurring grant for all indigenous medical institutions excluding the Podar Ayurvedic College. The local Unani College is in a very poor way financially and also from the point of view of teaching and equipment. Government Ayurvedic R.A. Podar College is considerably better off but there is plenty of room for further improvement.

(2ND DAY'S SESSION.)

14th April 1948

The evidence of the following witnesses was taken.

Shri Vamana Rao D. Vaidya.

Vaidya Venimadhav Shastri Joshi.

Dr. Ashanand Panjaratan, Principal, R. A. Podar Ayurvedic College.

The first two witnesses are agreed that the registration of the practitioners of indigenous medicine should be made compulsory for Government or Local Board services, but not for others.

Dr. Ashanand, however, held the view that it should be compulsory for all. They are unanimous that the control of practice

medicine can be taught to them. The qualified practitioners need not undergo any further training and the non qualified should go through a two years course. Vaidya Vamana Rao agreed with Dr. Ashanand in this. Vaidya Venimadhav Sastri felt that subjects of modern medicine need not be taught to the practitioners of Indian medicine.

The witnesses stated that they have no objection to the use of modern scientific methods for research in Ayurveda. In regard to synthesis they said that it is desirable and its success will largely depend on many years of research. They agreed that the compilation of an All India Pharmacopoeia is very necessary and added that the standardisation of drugs should be done by using modern tests, methods, etc.

Dr. Ashanand stated further that for the development, organisation and control of Ayurveda and co-ordination of administration of both systems, an administrative head i.e. a Director of Indian System should be appointed.

POONA

15th April 1948

The evidence of the following witnesses was taken —

Vaidya Shri Krishna Sastri Kavade B.A.

T. R. Apte

G. T. Joshi

Shri Kavade Sastri and Shri G. T. Joshi are for the registration of Vaidyas being made optional while Shri T. R. Apte opined that it should be compulsory. All of them are agreed that there should be an All India Medical Council with two autonomous branches for Indian and Western medicine. This Council should in their opinion exercise general control over medical education and lay down uniform standards which should be implemented by Universities.

In regard to the duration of the course of study in Indian medicine the witnesses felt that it should extend to five years and the educational qualification for admission for the course envisaged by them should be the acquisition of general knowledge upto matriculation standard with a good knowledge of Sanskrit. Vaidya Krishna Sastri Kavade suggested a shorter course of three years in addition to the above as part of the short term programme to rapidly produce practitioners for rural medical relief.

As for text books, the Vaidyas opined that they should be common to All India. Sri Kavade Sastri is for writing of the text books in Sanskrit. Vaidyas Apte and Joshi opined that they should be in Hindi.

In regard to teaching institutions, the witnesses felt that the Government should run model institutions in the provinces and permit the existence of such private institutions as are able to come upto standards that may be laid down for them by the Government.

The witnesses expressed the view, that it will be necessary to institute a six months course of special training to qualified practitioners and a two years' course for the unqualified. They further stated that only those who are thus qualified should be registered and unregistered practitioners should not be recruited for Government service.

They are agreed that research in Ayurveda is necessary and modern scientific methods can be utilised for the purpose. Vaidya Apte observed that as there are not sufficient number of persons available for research work the training of research workers should be undertaken first.

Synthesis of the Indian and Western system in their view, is not possible.

They are of the view that a Pharmacopoeia of Indian medicine which should lay down uniform standards is a pressing need and early steps should be taken to compile the same. Unanimous opinion has been expressed in regard to the necessity for exercising (i) control on the sale of drugs, (ii) control over the pharmacies (iii) prescribing qualifying examinations for Pharmacists and compounders.

The following witnesses tendered their evidence —

Dr R H Bhadkamkar, M A, M D, Ex president of the
Board of Indian Medicine Bombay
V M Bhat B A M B B S Yeola Nasik
M N Agashe M B B S Satara

All the witnesses expressed themselves in favour of enforcing compulsory registration of Vaidyas and Hakims. They are agreed to the constitution of an autonomous section of Indian medicine in the All India Medical Council. This Council should exercise general control over the teaching and practise of these systems. Subject to general direction that the Council may lay down from time to time the immediate control of teaching should be under the direct supervision of the provincial Univer

sities. They further stated that the basic qualification for entrance to the teaching institutions should be the first year science examination with Sanskrit, and after that the length of the course should be $4\frac{1}{2}$ years, or Matriculation with Sanskrit, when the length of the course should be $5\frac{1}{2}$ years. There should be a uniform curriculum for the whole of India. The medium of instruction in these institutions should be provincial language. Uniform text books are absolutely necessary. They should be written in Hindi retaining the technical terms in Sanskrit and translate them later on into provincial languages. It is their considered opinion that research in these systems is an urgent need and should be taken up by the central Government as early as possible. They suggested that the Government of India be requested to make provision for teaching pharmacology and pharmaceutical chemistry in the National Chemical Laboratory which is being established at Poona by the Central Government. They think it necessary that Government should introduce one paper for History of Indian Systems of Medicine and its principles in all Colleges of Western Medicine and this subject should also be included as part of post-graduate studies in the Universities.

In their view, synthesis is desirable and possible also and should be attempted immediately. The witnesses are in favour of imposing control over the selling of drugs; standardisation of drugs offered for sale, compulsory registration of Pharmaceutists and compulsory examination for persons dispensing drugs.

Dr. Dixit, M.D., Principal, B. J. Medical College, Poona, giving evidence next stated that he was unable to say anything about Indian systems which he had not studied. He could only speak about some indigenous drugs. With regard to drugs, he said that clinical research should be undertaken first jointly by modern doctors and Ayurvedic physicians in hospitals and when by this research they found certain drugs to be useful then laboratory investigations should be carried out on them by the scientists. He opined that the person who wants to carry on research in Indian systems of medicine should first study both Western and Indian systems. It is only then proper research would be possible. Government should therefore encourage medical graduates to study the indigenous systems first and switch them on to research.

Dr. Y. A. Pathak, M.D., Professor of Midwifery, Poona Ayurvedic College, in his evidence stated that research in Indian medicine

Vaidya Madhav Prasad Narayan Shankar

, Laxmi Shanker Ramkrishna Sastri

, Hariprasad C Bhat Baroda

, Vasudev Mulshankar Dwivedi

Sunderlal N Joshi

Except Messrs *Nagarlal Phatak Madhav Prasad Narayan Shankar and Laxmi Shanker Ramakrishna Sastri* who were in favour of introducing compulsory registration the remaining Vaidyas are in favour of making it optional

In regard to the control of teaching and practice they stated that they are in favour of All India control by a Medical Council and prefer to have a separate Council altogether for the Indian medicine. The immediate control on education should in their opinion rest with the Universities. *Vaidya Sunderlal* had a proviso that the Faculty of Indian medicine in the University should consist of persons qualified in Indian medicine only. He prefers if possible to have a separate University for Ayurved for the whole of India.

As for teaching institutions their curriculum basic qualification for admission length of course and medium of instruction they opined that the basic qualification should be the possession of general knowledge of S S L C standard with a good knowledge of Sanskrit or an equivalent examination. The length of the course should be not less than four years and the standard of teaching should be uniform throughout India. The medium of instruction in these institutions should be provincial language. They are in favour of uniform text books written in Hindi which may be later on translated into provincial languages. *Vaidya Sunderlal*, however favours the study of Ayurveda according to the old text books viz Charaka Susrutha etc and in his opinion these books should be translated as such into provincial languages.

They favour a short course of six months for those qualified from the existing institutions. A two years course in their opinion should be open for all others. In regard to synthesis of the systems *Sri Julundwalla* said that it is desirable and possible too. All others opined that though it is desirable it is not possible. They agreed that research is very badly required and viewed that it should be carried out according to the Ayurvedic methods. But they have no objection for checking the results of the research by modern scientific methods. *Vaidya*

Sunderlal, however, is not prepared for the checking of the results arrived at by Ayurvedists by the non-Ayurvedists.

They are all agreed that a standard Pharmacopœia is essential and stated that its compilation should be immediately undertaken. They are also agreed to the control of Pharmacies and Pharmacists provided this does not affect those Vaidyas who prepare their own medicine.

Dr. Barve, Acting Principal, B.G. Medical College, Ahmedabad, in his evidence stated, that, the registration of Indian medical practitioners should be made compulsory and a separate autonomous section for the Indian medicine for the whole of India should be created for controlling teaching and practice. The immediate control of education should, however, vest in the provincial Universities.

In regard to curriculum of studies, he opined that the standard should be the same all over India but the details should be left to provincial Universities to be settled. The length of the course, in his opinion, should be five years and the basic qualification for admission should be School Leaving Examination. He suggested that provincial languages or mother-tongue should be the medium of instruction. He further stated in this connection that common text books are necessary and for this purpose, an All-India Board should authorise these text books to be written by individuals or delegate the work of writing text books to well known scholars and authorities.

He preferred to have a few well-equipped and well-staffed teaching institutions with big hospitals attached to them instead of many smaller ones indifferently staffed and equipped. He agreed that a six months' course for qualified practitioners and a two years' course for those registered but not-qualified is necessary if the existing practitioners are to be taken up for medical relief and public health work. In regard to synthesis, he opined that it is not only desirable but also possible. Research, in his view, is absolutely essential. For this purpose, the modern medical graduates should study the Indian systems first which will make them suited for undertaking research as well as for evolving synthesis. He is in favour of having a standard Indian Pharmacopœia and agrees to the control of Pharmacies and Pharmacists.

JAIPUR.
29th April 1948.

Dr. Prem Nath Dhandu, B.A., S.M.B.B.S., District Health Officer, Jaipur who was the first witness to be examined stated:

that in the State only the modern system is being used. In his opinion it is desirable to combine the two departments (i.e.) medicine and public health into one but the public health man should be the head of the combined department. He proceeded to observe that Ayurveda needs investigation and research. It is desirable to have a common system of medicine for India. To achieve this end a small course in Ayurvedic principles, methods of diagnosis and treatment should be framed and it should be made a compulsory study in the medical colleges.

Dr W. Nazareth acting Director of Medical Services, Jaipur State, who was next examined said that he is in favour of enforcing compulsory registration of Vaidyas and Hakims. In his opinion there should be a standard Indian Pharmacopoeia for Indian medicine. The minimum qualification for the proper study of Indian medicine, he said, should be the same as for the M.B.B.S. course, i.e. inter science and the duration of the course should be five years with an extra one year for hospital work.

Research in these systems, he said, is absolutely necessary and it should be carried on in an institution attached to a hospital equipped with necessary laboratories.

The following Vaidyas and Hakims were then examined —

Pandit Nandkishorji Ayurvedacharya, Principal, Government Ayurvedic College

Vaidya Mangaldasji Swami

Jaganadadasji Swami, Ayurvedacharya

Moolchand Deolji, Bishagratna

Kalyanpoornandji, Bishagacharya

Niranjanlalji, Inspector of Ayurvedic and Unani Institutions

Hakim Mohammed Ebrahim Khan

Salwaddar Khar Sahab, Principal, Rajaputana Ayurvedic and Unani T. B. College

All the witnesses mentioned above are in favour of compulsory registration and for imposing severe penalty for those who practice without being registered.

In regard to the control of teaching and practice they are in favour of creating an autonomous section for Indian medicine in the All India Medical Council. For the immediate control of education they prefer a separate Faculty for Indian Medicine as a part of the provincial Universities. A common and uniform curriculum for the whole of

India, in their view, is a necessity. School Leaving Examination plus a good knowledge of Sanskrit such as Prathama of Benares for Ayurved and good knowledge of Urdu or Persian for Unani, should in their opinion, be the general qualification of students for admission to institutions of Indian medicine and the length of the course must be six years. As for the medium of instruction, Hindi or provincial language is preferred by them. They are of the view that text books common to all parts of India are absolutely necessary. They should be written in Hindi first and translated later on into different provincial languages. They are in favour of founding institutions of high standard only. They also opined that a six months course will be necessary to fit in the existing practitioners for public health and medical relief work. Such practitioners should also be registered. 01

Agreeing that research is most essential, they opined that an ultimate synthesis of the systems is not possible in the near future. They are in favour of evolving a uniform and standard Indian Pharmacopoeia for the whole of India for the Indian medicine, and the control of Pharmacies and Pharmacists. Lastly, they urged that qualified Ayurvedic and Unani practitioners should be given the same status and facilities as are given to allopathic practitioners.

APPENDIX A-III (3).

LIST OF WRITTEN MEMORANDA AND PRINTED LITERATURE CONSIDERED BY THE COMMITTEE.

Written memoranda

1. Memorandum by Sir C. Narayanaswami Naidu, Special Officer for the Reorganisation of the Department of Indigenous Systems of Medicine, Government of Madras. 01
2. Vaidyasastranipuna Dr. L. A. Ravi Varina, B.A., M.B.O.M., D.O.M.S., Honorary Director of Ayurveda, Travancore State. 02
3. Dr. L. Anantaraman, L.I.M., Perambakkam. 03
4. Dr. M. E. Naidoo; L. R. O. P. & S. (Edin), L. F. P. S. (Glas), L. M. (Dublin), Kottar, Travancore. 04
5. Shri T. V. S. Panthulu, B. A. B. L., Broadipet, Guntur. 05

- 6 Memorandum by The Association of National Medical Graduates of India, Delhi
- 7 Memorandum on "Indigenous Medicine, Pseudo Science and Quack Practice" by Dr S C Seal, All India Institute of Public Health and Hygiene, Calcutta
- 8 " " "Post War Reconstruction of Ayurveda' by Kaviraj Prabhakar Chatterjee, M A, Calcutta
- 9 " " "Medical Science and its Progress" by Shifa ul Mulk Hakim Abdul Latif, Vice Principal, Tibbia College, Muslim University, Aligarh
- 10 " " 'Ayurveda', by Dr D N Banerjee, M D (Cal), M D (Berlin), Professor of Pathology, R G Kar Medical College, Calcutta.
- 11 " " the Terms of reference of the Committee by Kaviraj Rakhal Das Sen, Calcutta
- 12 " " the Terms of reference of the Committee by Pandit Jagannath Prasad Shukla, Allahabad
- 13 Indigenous Systems of Medicine by Dr C Mehtab Deen, I C A T M D H, Poona
- 14 Memorandum by Kaviraj Hriday Bhushan Gupta, Calcutta
- 15 " " M K Vaidier, Tellicherry
- 16 " " Kaviraj V K Bhattacharya Ex General Secretary, All India Ayurvedic Congress Calcutta on the Indigenous Systems of Medicine
- 17 " " Shri K N Gopalan Vaidyan, Quilon (Travancore)
- 18 " " Shri V Saptharishi Triplicane Madras
- 19 " " The Apprentice Physicians Association, Government College of Indian Medicine, Madras
- 20 Memorandum on the 'Scope and Importance of Ayurveda' in three volumes by Dr A Lakshmi pathi, B A, M B, & O M, Madras
21. Syllabus for a Degree Course in Ayurveda by Shri K Balasubramania Iyer B A, B L, Advocate, High Court, Madras, and

Secretary, Venkataramana Ayurvedic
Patashala, Mylapore, Madras.

22. Printed Curricula of studies relating to :

- (i) Government College of Indian Medicine, Madras.
- (ii) Andhra University Vice-Chancellor's note and draft regulations and curricula of the course in Bachelor of Ayurveda.
- (iii) Benares Hindu University Ayurvedic College, Benares.
- (iv) Seth Tarachand, Ramnath Ayurvedic College, Poona.
- (v) Nizam's Unani and Ayurvedic College, Hyderabad.
- (vi) Tibbia College, Muslim University, Aligarh.
- (vii) Government Ayurvedic & Unani College, Mysore.

23. Memorandum on "Some more reasons for research in Ayurveda" by Dr. M. N. Agashe, M.B.B.S., Satara.

24. "A lead to the Researchers in Ayurveda" by Vaidya Venimadhav Shastri Joshi, President, Ayurvedic Samshodhan Sangh, Bombay No. 2.
25. "Lines of Research in Ayurveda" by Kaviraj Rakhal Das Sen, 151, Vivekananda Road, Calcutta.
26. "Research in Ayurveda" by Dr. A. Lakshminipathi, B.A. M.B. & C.M. Madras.
27. "Research in Ayurveda" by Dr. B. C. Lagu, A.V.V. President, Board of Indian Medicine Poona.
28. "Research in Ayurveda" by Dr. D. N. Banerjee, M. B. (CAL), M.D. (Berlin), Professor of Pathology, R. G. Kar Medical College, Calcutta.
29. "Research in Ayurveda" by Vaidya-panchanan Gangadhar Shastri Gune, Ahmednagar.
30. "Research in Indian Medicine" by Dr. P.M. Mehta, M.D., M.S., F.O.P.S., Chief Medical Officer, Jamnagar.

31. Memorandum on the "Necessity for Research in Indian Medicine" by Dr. P.M. Mehta, M.D., M.S., F.C.P.S., Chief Medical Officer, Jamnagar.
32. "Lines of Research in Unani Tibb" by Dr A Butt, M.D. Principal, Tibbia College, Aligarh.
33. "On the Unani System of Medicine" by Hakim Nassir-ud-din Ahmed Khan, Hyderabad (Dn)

Printed Literature

PRESIDENTIAL ADDRESSES

1. Presidential Address by Shri B. V. Degwekar, M.A., M.Sc., L.L.D., -the 7th All-Karnatak Ayurvedic Conference and Exhibition. Hubli, 1934.
2. Address of Vaidya Shiromani Kaviraj Manindra Lal Das Gupta, M.A., M.B., Kaviratna, at the 29th session of the All-India Ayurved Mahasammelan. Jodhpur, 1939.
3. Address by Prof. B.T. Krishnan at the 29th session of the Indian Science Congress, on the "Need for the expansion of Physiological and Pharmacological Research in India." Baroda, 1942.
4. Address by Vaidyaratna Capt. G. Srinivasa Murti, B.A., B.L., M.B. & C.M., Retired Principal, Government School of Indian Medicine, Madras on "Medical Education and Medical Relief in India" at the inaugura-

- tion of the 'Academy of'
Indian Medicine. Madras, 1944.
5. Presidential Address by Dr. C Dwarakanath, L.I.M., (Madras) z.T. (Hamburg' Varsity), Research Officer, Sri Jayachamarajendra Institute of Indian Medicine, Bangalore, at the Scientific Session of the 17th Provincial L. I. M. Conference Bellary, 1947.
6. Address by Dr M. O. Kini, M.B, M. CH. etc, to the 9th Annual Conference of Association of Surgeons of India. Bombay, 1947.
7. Address of Col. Sir Ram Nath Chopra, C.I.E, I.M.S., (Retd), at the 34th session of the Indian Science Congress. Patna, 1947.
8. Address by Ayurveda Vidwan Dr. N. Gundappa, L.A.M.S, L.M.P., Hony. Medical Officer and Director, Free Ayurvedic Dispensary and Research Institute, Sri Rampuram, Bangalore, delivered at the 8th Conference of the Graduates of the Mysore Government Ayurvedic and Unani College. Mysore, 1948.

Other related literature.

9. "A scheme for the rehabilitation of the Ayurvedic System of Medicine in the Province of West Bengal" submitted to the Government of West Bengal by the General Council and State Faculty of Ayurvedic Medicine, Calcutta.

10 "Voice of Ayurveda" by Kaviraj
Heramba Nath Shastri, 13/B, Lakshmi
Dutta Lane, Calcutta

11 "Antiquity of Hindu and Greek Medi-
cine"

12 "Nidāna on the Pathology of the
Hindus"

13 "Medicine in India during the Bud-
dist period" (Reprint from Rev
Trop Dis Vol I, pp 355-1944 46)

14 "Resuscitation of Ayurveda" (Reprint
from the Journal of the Ind Med
Assoc Vol XVI, No 1 January
1947, pp. 124 131)

15 "Hridaya in Ayurveda" (Reprint from
Indian Medical Record Vol LXVII,
No 4)

16 "A scheme for the Re orientation of
Ayurveda" (Reprint from the Jour-
nal of the Indian Medical Associa-
tion, Vol LXVI, No 9, June 1947)

17 "Independent India and Ayurveda"
(Reprint from the Indian Medical
Record Vol LXVII, No 8)

18 "Unified System of Medicine", by Aur-
veda Vidwan Vinayakrao Bapat,
L A M S, Talaguppa, Shimoga District,
Mysore State (Reprint from Indian
Medical Record Vol LXVII, No 9).

19. "Critical Review of the Sen Gupta,
Memorandum" by Acharya B A,
Pathak Principal Ayurvedic College,
Benares Hindu University

20. "Plain Talk on the Indian Medical Asso-
ciation's Memorandum on the Indi-
genous Systems of Medicine" by Dr.
M N Agashe M B S, Sanchalak,
Bhadkamkar Ayurveda Samshodhan
Mandir, Satara

21 "Joint rejoinder to the Draft Memor-
andum by Dr K K Sen Gupta, Con-
venor, Central Committee of the

By Dr D N Baner-
jee, M B (Cal-
cutta) (Berlin), Pro-
fessor of Patho-
logy, R G Kar
Medical College,
Calcutta

Indian Medical Association" and "to the Memorandum on the Indigenous Systems of Medicine by the Indian Medical Association to the Government of India" by Vaidya Sabha, Jubbulpore.

22. "Mahatma Gandhi's views on Ayurveda" submitted by the Indian Medical Association, Calcutta.
23. "Need for Scientific Medicine in India" by Dr. B. Tirumal Rao, F.R.C.S. (Edin.), D.L.O. (Lond), Professor of Oto-Rhino-Laryngeology, Andhra Medical College, and Surgeon, King George Hospital, Vizagapatam. (The Journal of the Indian Medical Association, Vol. XVI, No. I. October 1946.)
24. "Visha-Vaidyam in Cochin" by Ayurvedacharya Dr. M. Visweswara Shastri, H.P.I.M., Medical Officer, Government Hospital of Indian Medicine, Madras (Re-print from the Journal of Indian Medicine, March 1947.)
25. "Visha-Vaidyam in Cochin" by His Highness Kerala Varma, the late Maharaja of Cochin translated into English by Ayurvedacharya Dr. M. Visweswara Shastri, H.P.I.M., Madras.
26. Memorandum on Castes in the Medical Profession and Services.
27. Medical Research in India, past, present and future.
28. Reasons for the backward state of Public Health in India.
29. First Things First in Public-Health including Medicine.
30. Ayurveda - Prakash by Professor. Somdev Shastri, Pilibhit.
31. Ayurvedic Khanij Vignana by Vaidyaratna Kaviraj Pratap Sinha, Superintendent, Ayurvedic Pharmacy, Benares Hindu University.

By Rao Bahadur
Dr. T. S. Tirumur-
thi, B.A., M.B. &
c M, D.T.M. & H.,
Retired Principal,
Stanley Medical
College, Madras.

- | | | |
|----|---|---|
| 32 | A few suggestions regarding Medical Education in future India | } By Dr P M Mehta
MD MS FCIS
Chief Medical
Officer Jam
nagar |
| 33 | Medical Systems and Institutions in Ancient India | |
| 34 | Shareer Tathva Darshanam by Vaidya P S Hirlekar Shastri Amraoti | |
| 35 | Health Problems of Burma by Dr Maung Sein | |
| 36 | Proceedings of the Academy of Indian Medicine Post War Reconstruction Schemes of Indian Medicine 1947 | |
| 37 | Gold Therapy in Tuberculosis | } By Dr C Dwara
kanath L R M
(Madras) Z T
(Hamburg Var
sity) Research
officer Sri Jaya
chamarajendra
Institute of
Indian Medi
cine Bangalore |
| 38 | A note on the Organisation of Research in Indian systems of Medicine (Re print from the Journal of Indian medicine Vol I Issue II | |
| 39 | A note on the Survey of Medicinal Plants in Mysore State prepared for the Chairman Committee of Indian Medicine Bangalore | |
| 40 | A note on the preparation of an Ayurvedic Pharmacopoeia for Mysore State (Re print from the Journal of Indian Medicine April 1948 | |
| 41 | A note on Mani Manthra and Yoga by Swami Vaidyanathendra Bharati Mysore | |
| 42 | A note on Unani Medicine by Hakim Mohd Hassan Qarshys Lahore | |

APPENDIX A IV (1)

LIST SHOWING PROVINCES LOCAL ADMINISTRATIONS AND INDIAN STATES TO WHOM QUESTIONNAIRES WERE ISSUED AND THOSE FROM WHOM REPLIES TO QUESTIONNAIRE NO I WERE

RECEIVED

(1) Questionnaire No I was issued to the under mentioned Provincial and State Governments and Local Administrations

Provincial Governments

1	Madras	4	Bihar
2	East Bengal	5	Assam
3	The United Provinces	6	Orissa

- | | |
|----------------------------|---------------------------|
| 7. Bombay | 10. West Punjab |
| 8. West Bengal | 11. The Central Provinces |
| 9. East Punjab | 12. Sind |
| 13. The N. W. F. Province. | |

Local Administrations

- | |
|------------------------------|
| 1. Chief Commissioner, Delhi |
| 2. „ „ Coorg |
| 3. „ „ Ajmer |
| 4. „ „ Baluchistan |

States

- | | |
|----------------|----------------|
| 1. Hyderabad | 14 Patiala |
| 2. Mysore | 15 Cooch Bihar |
| 3. Holkar | 16. Mayurbhanj |
| 4. Bhopal | 17. Tripura |
| 5. Rewa | 18 Kashmir |
| 6. Bikaner | 19 Benares |
| 7. Jaipur | 20 Gwalior |
| 8. Jodhpur | 21. Rampur |
| 9. Udaipur | 22. Cochin |
| 10. Baroda | 23 Pudukkottai |
| 11. Cutch | 24. Travancore |
| 12. Bahawalpur | 25. Kolhapur |
| 13. Khairpur | |

Replies to Questionnaire No. I were received from the undermentioned Provincial and State Governments and Local Administrations -

Provincial Governments

- | |
|----------------------------|
| 1. Government of Madras |
| 2. „ East Bengal |
| 3. „ The United Provinces |
| 4. „ Bihar |
| 5. „ Assam |
| 6. „ Orissa |
| 7. „ Bombay |
| 8. „ West Bengal |
| 9. „ The Central Provinces |

Local Administrations

- | |
|------------------------------|
| 1. Chief Commissioner, Delhi |
| 2. „ Coorg |
| 3. „ Ajmer |

States

1	Hyderabad	6	Khairpur
2	Mysore	7	Patiala
3	Holkar	8	Rampur
4	Jodhpur	9	Cochin
5	Bahawalpur	10	Pudukottai
	11	Travancore	

Summary

<i>Governments/Local Administrations/ and States</i>	<i>Addressed</i>	<i>Replies Received</i>
Provincial Governments	13	9
Chief Commissioners' Provinces	4	3
States	25	11
	42	23

APPENDIX A IV (2)

LIST OF COLLEGES SCHOOLS RESEARCH INSTITUTIONS
ORGANISATIONS ASSOCIATIONS ETC WHO HAVE
ANSWERED QUESTIONNAIRE NO II ISSUED
BY THE COMMITTEE

AJMER

- 1 Shri Kalyan Ayurveda Vidyalaya
and Shri Sudarshan Ayurvedic
Aushadhalaya Beawar

ASSAM

- 2 Surma Ayurveda Vidya Pith Silchar
3 Government Tibbia College Sylhet

BIHAR

- 4 Dharma Samaj Sanskrit College Muzaffarpur
5 Government Tibbia College Patna

BOMBAY

- 6 O N Ayurvedic College Timahya
Vad Nanpura Surat

- | | | |
|-----|--|-------------|
| 7. | Aryangla Vedic Mahavidyalaya. | Satara City |
| 8. | R. A. Podar Medical College (Ayurvedic) Worli. | Bombay |
| 9. | Tibbia College. | " |
| 10. | Ayurveda Sewa Sangha. | Nasik |
| 11. | Ayurveda Mahavidyalaya. | Poona |

THE CENTRAL PROVINCES & BERAR

- | | | |
|-----|---|-------------|
| 12. | Shree Bhagwat Dharma Ayurveda Vidyalaya, Nagari Post, Shegan, | Buldana |
| 13. | Shri Ashtang Ayurveda Sanskrit Mahavidyalaya. | Seoni |
| 14. | Ayurved Vidyalaya, | Hoshangabad |
| 15. | Hitkarni Sanskrit Pathshala. | Jubbulpore |
| 16. | Puranik Ayurveda Mahavidyalaya. | Nagpur City |

DELHI

- | | | |
|-----|---------------------------------------|-------|
| 17. | Ayurvedic and Unani Tibbi College. | Delhi |
| 18. | Banwari Lal Ayurveda Trust Vidyalaya. | " |
| 19. | Jama Tibbia. | " |

E. PUNJAB

- | | | |
|-----|---|-----------|
| 20. | Shafa-Khana Amraz Chashm. | Jullundur |
| 21. | Anjaman Kohalan. | " |
| 22. | Punjab Vedic and Unani, Tibbia College. | Amritsar |
| 23. | All-India Anjaman Khadam-ul-Hikmat. | Gurdaspur |

MADRAS

- | | | |
|-----|---|---------------|
| 24. | Govt. College of Indian Medicine. | Madras |
| 25. | Sri Venkataramana Ayurvedic College and Dispensary, Mylapore. | " |
| 26. | The Academy of Indian Medicine. | " |
| 27. | The L. I M. Association, | " |
| 28. | Prak-Paschima Vaidya Kalasala. | Yellamanchili |
| 29. | The All-India Hereditary Ayurvedic and Unani Doctors League. | Guntur |
| 30. | Shri Rama Mohan Ayurvedic College. | |
| 31. | The Association of Andhra Provincial Physicians of Indian Medicine. | |

- | | | |
|----|---------------------------------|-----------|
| 32 | Bhushana Kutceram Gurukulasrama | Tenali |
| 33 | Arya Vaidya Patasala | Kottakkal |

ORISSA

- | | | |
|----|-----------------------|------|
| 34 | Puri Sanskrit College | Puri |
|----|-----------------------|------|

THE UNITED PROVINCES

- | | | |
|----|---|-----------|
| 35 | Takmil ul Tib College | Lucknow |
| 36 | Shri Mool Chand Rastogi Ayurvedic College, | " |
| 37 | Mamba ul Tib, College | |
| 38 | Unani Medical College | Allahabad |
| 39 | Ayurvedic College, Benares Hindu University | Benares |
| 40 | Shri Baldev Ayurved Vidyalaya | Bidagaon |
| 41 | Ayurvedic College Gurukul Kangri | Hardwar |
| 42 | Rishikul Ayurvedic College | |
| 43 | Tibbia College Muslim University | Aligarh |
| 44 | Lalit Hari Ayurvedic College, | Pilibhit |
| 45 | Empress Sanskrit Ayurvedic Aushadhalaya | Bahraich |
| 46 | Gurukul Maha Vidyalaya | Jawalapur |

WEST BENGAL

- | | | |
|----|---|----------|
| 47 | Ganga Charan Ayurveda Vidyalaya | Calcutta |
| 48 | Vishwanath Ayurveda Mahavidyalaya | " |
| 49 | Maharaja Cossimbazar Govinda Sundari Ayurvedic College and Hospital | |
| 50 | Jaminibhushan Ashtanga Ayurveda Vidyalaya and Ayurveda Arogya sala | |

STATES

- | | | |
|----|--|------------|
| 51 | Sri Jayachamarajendra Institute of Indian Medicine | Bangalore |
| 52 | Shri Ramakrishna Vidyapeeth, Basavangudi | |
| 53 | Govt Ayurvedic & Unani College & Hospital | Mysore |
| 54 | Govt Ayurveda College | Trivandrum |
| 55 | Ayurvedic Hospital | Kodakara |

56	Shri Ujmasi Pitambardas Ayurvedic Mahavidyalaya	Patan
57	Rajkumarsing Ayurvedic College	Biyabani
58	Shri Sanga Ayurveda Mahavidyalaya, Brahmacharya Ashram	Puha
59	Ayurvedic Department.	Patiala
60	State Ayurveda Vidyalaya	Lashkar
61	Rajputana Ayurvedic & Unani Tibbia College	Jaipur
62	Nizam Ayurvedic College,	Sir Sikandrabad (Dn)
63	Shri Hanuman Ayurveda Mahavidyalaya,	Ratan Garh
64	Shri Rushikul Ayurveda College	"
65	Shri Mohta Ayurveda Vidyalaya Chikitsalaya & Rasanyan Shala	Bikaner
66	Shri Martand Ayurvedic Aushadh alaya and Martand Vidyalaya	Kotah

PAKISTAN

67	Bhagat Lakha Ram Taneja Mahila Ayurvedic College	Lahore
68	Jadid Hindustani Tibbia College	"
69	Shri Vashishth Ayurveda Vidyalaya	Karachi
70	Municipal Ayurvedic Dispensary	"
71	Dacca Ayurveda College and Mahapith	Dacca

APPENDIX A-IV (3)

LIST OF PRACTITIONERS OF AYURVEDIC, SIDDHA, UNANI TIBB
AND WESTERN SYSTEMS OF MEDICINE WHO ANSWERED
QUESTIONNAIRE NO. III

AJMER

1	Dr ManKaran Sarda, B sc, M B B S	Ajmer
2	Rajvardya E Dutta Misra, L M A	
3	Vaidya Pawani Prashad Sharma	
4	" Brahma Nanda Tripathi, B A	
5	" Ramesh Chander Vyas, Bhishagacharya	
6	" Kalyan Singh	

7	Vaidyaráj Pandit Dinesh Chander Sharma, Ayurvedacharya	Ajmer
8	Hakim Abdul Wadood Khan	"
9	" Mohammad Habibullah Khan	"
10	" Abdul Azam Noshari Khan	"
11	" Abdul Wahid Khan	"
12	" Mohd Ishaq Delhvi	"
13	" Dilawar Khan	"
14	" Hafiz Ghulam Ahmed Khan	"
15	" Mohd Nimat Ullah Khan	"
16	" Mirza Anwar Ahmed	"
17	" Mohd Ghias ud din	"

ASSAM PROVINCE

18	Dr H M Bannerjee	Shillong
19	Kaviraj Debendra Nath Sarma, Kavi ratna	"
20	" Rajendra Kumar Sarma Pa thak	"
21	" Kavibhushana Sita Ram Bhat- tacharya	"
22	" Sirish Chandra Ayurveda Sas- tri	"
23	Dr Gatindra Mohan Dab	Cachar Dist
24	Kaviraj Ramesh Chandra Sharma Bhishagacharya	"
25	" L C Shastri	"
26	" Dinesh Chandra	"
27	" Hareesh Chandra Bhatta charya, Vishak Sastri	"
28	Sjt Aswini Kumar Bhattacharjee	"
29	Dr Amiruddin Ahmed L M F,	Sibsagar
30	Sjt L N Bezbarua, L A M S,	"
31	Dr A K Bakakdity	Dhekrajuli
32	S Bhattacharjee M B	"
33	Kaviraj Nagendra Chandra Chakra barthy	Tezpur
34	" S N Bose	"
35	" Sarat Chandra Goswami Vya- karanatirtha Ayurveda Sastri	"
36	" Nageswar Sarma, Vyakaran Sastri Ayurvedaratna	"
37	" Maheswar Deb Goswami	"

38	Kaviraj Chandra Mohan Ghosh, D A M F	Gauhati
39	„ Taranath Chakravarty, Kavya- binode, Ayurveda Adhya- paka	„
40	„ Upendra Narayan, Vyakarana- thirtha, Ayurvedacharya	Dhubri
41	„ Upendra Nath Biswas, Kavya- thirtha, Ayurveda Shastri	„
42	„ Haresh Chandra Bhattacharya, Vishaksastri	Silchar
43	„ Guriya Bhusan Poddar	„
44	„ Narayan Chandra Bhatta- charya	„
45	„ Manoranjan Bhattacharya, Vyakaranthirtha, Ayur- veda Sastri	„
46	„ Kamakhya Ranjan Bhatta- charji, Bhisagacharya	„
47	„ Mohindra Chandra Soyami, Bhishagratna	„
48	„ Braja Kishore Bhattacharjee	„
49	„ Bijay Kumar Bhattacharjee, Bhishagratna	„
50	„ Rangalal Dutta Gupta, Kavi ' ratna	„
51	„ Mohendra Chandra Bhatta charya	„
52	„ Tarini Kumar Bhattacharjee, Kavyatirtha, Ayurveda Sastri	„
53	„ Kaljay Bhattacharya, Nyay panchanan, Bhishagratna	„
54	„ Nabin Chandra Goswami, A M B, Ayurveda Sastri	Golaghat
55	„ J C Bhattacharya, Ayurveda , charya	Jorhat
56	„ Ananta Kumar Kar, Ayurveda Shastri, A M B	North Laxshmi- pur
57	„ Vaidya Komu Rai	Cherrapunji
BIHAR PROVINCE		
58	Kaviraj Sukhram Prasad, B sc, Ayur- vedacharya	Patna
59	Hakim Syed Ahmed Hussain	„

60	Hakim Syed Nuzahar Ahmed	Patna
61	" Shri S N Upadhyaya	"
62	Kaviraj Sheo Dayal Prasad	Saran
63	" Amalendra Sastri	Jamshedpur
64	" Lala B S Sen, A M S	Motighat
65	P N Sastri, Bhishagratna, I A M S	Deoghar
66	" Anand Mahapatra	Puri
67	Pandit B R Mishra Pranacharya	Motihari

BOMBAY PROVINCE

68	Lt Col M S Irani, F R C S (EDM) I M S, (Retd)	Poona
69	Bhishagacharya Pt Tryambak Shastri	"
70	Vaidya K V Kulkarni	"
71	Vaidyapanchanan Krishna Shastri Kivade, B A	"
72	Vaidya Deshpande, R N D Ayurveda charya	"
73	" Tejmall Nathmallji Sand	"
74	" Madho Ganesh Joshi, Ayurve dacharya	"
75	" Ganesh Shastri Joshi	"
76	Dr G B Aphale, A M S	Kolhapur City
77	" V V Athalye M D (HON)	Satara
78	Vaidya Vinayak Krishan Bakshi	"
79	Shri Ramachandra alias Balshastri Damodarshastri Malekar	"
80	" Pandurang Ramachandra Male kar Vaidya B A (HON)	"
81	" Keshav Ramachandra Malekar, Vaidya	"
82	Dr N G Kale B A M	Ahmednagar
83	Vaidya Panchanan Gangadharashastri Gune	"
84	Dr A. S. Paranjpe	Bombay
85	Vaidya Beni Madho	"
86	" Ushri Dass	"
87	" Kishore Dass Bhagirath Gupta	"
88	" Shri Vamanrao	"
89	Pranacharya Gopal Shashtri Godbole	"
90	Vaidya P V Dhamankar, Ayurveda bhushan	"

91	Vaidya Raghunath Gopal Krishan Tambavekar	Bombay
92	" Ganapatro Pandurang Kal- kohe, A M S	"
93	" Pratapkumar	"
94	" Laxman Ramchandra Malekar.	"
95	" Navinchandra T Sonwadiwala Ayurved Bhushak	"
96	" Pandurang Kelewadi Soman chal	"
97	Rajavaidya Damubhai Ramprasad	"
98	Hakim Mohd Surwar	"
99	" Gulam Hussain	"
100	" Altaf Hussain Khan	"
101	" M M Islahi, D R M S	"
102	" M H Mohd Yunus Matap Ghowasia	"
103	" Shams ul Islam Dehlavi	"
104	" Shifa ul Mulk Rashid Ahmed Khan	"
105	Shri Vamanrao D Vaidya	"
106	" A V Anapure, Vaidya Ratna B SC, L L B	"
107	Ayurved Samrakshak Mandal	"
108	Bombay Vaidya Sabha	"
109	Dr I M Bhat B A M B B S	Nasik
110	Kaviraj Deodhar	"
111	Vaidya Bindu Madhav Pandit	"
112	" Vishnu Ganesh Kalkar, Vaidya- ratna	"
113	Dr B V Mulay M S	Sholapur
114	Vaidya Shri Krishna Bajan	"
115	" N N Bagewadikar	"
116	Dr H V Savnur I M & S	Belgaum
117	Vaidya Pt Gobind Ram Chander Joshi	"
118	" B N Gramopadhvaya	"
119	Vaidyashastri Mangaleshwer Somnath	Ahmedabad
120	Vaidya Bhushan Shashi Kant Bhula Bhai	"
121	Dhattatreya Shastri	Nasirabad
122	Bhojraj Ingly	Sawada
123	Motiram Sada Shiv	Kandesh
124	R G Habbu A V V	Bijapur
125	M Gopala Krishnarao L A M S	Dharwar

126	Vaidya B N Kulkarni	Dharwar	14
127	" M S Kirloskar, A M S	"	
128	" G. B Savanur, L A M S	"	1
129	Ayurvedacharya Timancharya H. Puranik	"	
130.	Hakim Shah Mohd	"	
131	The Dharwar Vaidya Union	"	
132	Vaidya G M Vaze, A V V	Chikodi	
133	Sjt Bapalal G Vaidya	Surat	
134	The Surat Vaidya Sabha	"	
135	Shri Dattatray Kashinath Thatte	Ratnagiri	11

THE CENTRAL PROVINCES

136.	Lt. Col. A S Grewal, I M S.	Nagpur	
137	Captain A K Sen Gupta, M B B S.	"	
138.	Dr S N Dubo, A M S	"	
139	Col L K Ledger, O B E, C I E	"	
140	Vaidya G. B Vaze, Ayurveda Visharadha, /	"	
141	" Vachaspati Shri Gul Raj Sharma, Ayurvedacharya.	"	
142	Pandit Kedar Nath Sharma, Vaidya.	"	
143	Pranacharya Govardhan Sharma.	"	
144	Pradan Mantri, V M Sathanik Swarajya	"	
145	Dr V J Deoras, A M & S	Bilaspur	
146	" Padmakar Athawale, A M M S.	Bhandara	
147	" B W Deshpande, A M S,	Khamgan	
148	Hakim Mohd Ajmal Khan, K T J	"	
149	Dr Madhusudan Kane, A M S	Yeotmal	
150.	" D G Gijre		
151	" L N Pachori, B S C, A M S	Jubbulpore	
152	Vaidya B V Degweker, M, A M S C, L. L B.,	"	
153	Dr D S Deshmuk	Raipur	
154	Vaidya Raj Ayurvedacharya C L Sharma	"	
155	" Trita Nath Tiwari, Bhishag acharya	"	
156.	" H P Agarwala, Bhishg-acharya	"	
157	" Ram Phal Mishra, Ayurved Visharadha	"	
158	Dr. Govind Prasad Sharma Shastri	Raigarh	
159	" A. K Bhalekar	Kanhiwara	

160	Vaidya A S Shendye A M M S	Saugor
161	Hakim Mohd Charaghuddin	"
162	Dr B K Tarade, H M D, A B	Burhanpur
163	Hakim Dr Kishandas Tikamdass	"
164	Hakimullah Hairat	"
165	Syed Hassan Ahmed	Akola
166	Mohd Fasl ud din	"
167	Bhishagacharya Hari Shastri Pardkar.	"
168	Shree Thakar Partap Singh	"
169	Vaidya Pandit Ram Gopal Mishra	Gondia
170	Kaviraj Ram Dayaloo Tripathi, Shash- tri, Chikitsak	Harda
171	Vaidya Hari Har Vaman Deshpande	Amraoti
172	" Amba Dass Narayan Kunne kar	"
173	Pranacharya Vaidyabhushan Purshot tam Sakha Ram	"

DELHI

174	Dr Susanta Sen, M A, B D, M D H	New Delhi
175	" Mohammed Yusuf Khan	Delhi
176	Kaviraj Shri Dayal Sharma, Bhishag acharya	"
177	" Shri Nityanand Varma	"
178	" Shri Nath Sarma	"
179	Vaidya Ravi Dev Shastri	"
180	" Fateh Singh	"
181	Sjt Chandra Sekhara Nand Ji Shastri	"
182	Kaviraj Jyotish Chandra Saraswathi	"
183	Vaidya Bawa Mahindar Singh	"
184	Khan Sahib Hakim Mohd Saraj ud din Khan	"
185	Hakim Rehman Khan	"
186	" Mohammed Khan	"
187	" Syed Ahmed Usmani	"
188	" Inashadul Haq	"
189	" Abdul Wahid Khan	"
190	" Ahsan Elahi	"
191	" Syed Amjad Ali	"
192	" Syed Qaim Hussain	"
193	" Maulvi Ali Akbar	"
194	" Abdul Halim	"

195	Hakim M Akbar Shah	Delhi
196	, Majid Ahmed	"
197	, Abdul Razaq	"
198	" Ashaq Ahmed	,
199	, Mohd Mukhtar Hussain Khan	New Delhi
200	, Rashid Uzzubair	
201	, Mohd Mobeem	
202	Inayat ul Rahman	
203	Shamsuddin Bashir	
204	" Attaul Rahaman	,
205	Habib Ahmed Khan	,
206	" Hashim Jan Kaif	"
207	" Khwaja Zahur Ahmed	,
208	" Muquim ul din	
209	" Mohammed Ismail	,
210	Prof Fiazuddin	
211	Hakim Abdul Rahman Khan	Ballimaran
212	" Abdul Rahim Khan	
213	" S Mohammed Ismail	,
214	" Azizul Rahman Khan	
215	" Qann Jan	Chitli Qabar
216	" Sharifuddin	
217	, Mohammed Ayob Khan	
218	, Shahajuddin Baqai	"
219	" Rashid Alam Khan	,
220	" Hafiz Mohammed Intzar	Farash Khana
221	, Muzafar Hussain	,
222	, Mirajul-Din	
223	Faruq Ali Begh	
224	Mohammed Hussain Khan	
225	, Mohammed Bashir	
226	, Abdul Salam	Pahar Dhiraj
227	Mohammed Sultan Janab	Bazar Katna Baman
228	Mohammed Hadji Qurashi	Ganda Nala
229	, Mohammed Anjum Khan	Tirah Bahram Khan
230	, Fazal ud din Iureshi	Near Jamma Masjid
231	" Mir Azam Jami	
232	" Mohammed Ithiyas	Pahar Gurj
233	" Karim Baksh	
234	" Shaheer ud din	"

235. Hakim Mohammed Yussuf. Kutchia Chelan
 236. " Hafiz Mohammed Mohin-ul-ud-din Bagai. Matia Mahal
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689	" Mohd Wahid Ullah	Gorakhpur
690.	" Abdul Kabir	Sitapur
691	" Abzal Ahmed	Budaun
692	" Mukhtar Ahmed	"
693	" Mohd. Zafaryab Khan	"
694.	" Bashir Ahmed	Buxar
695	" Maulvi Mohd Nur-ul Haq	Deoria
696.	" Mohd Usaf Saidwara	Ghazipore
697.	" Syed Mohtam Ali	Kheri
698	" Qazi Abu Syed Mohd Yaqab Hussain.	Biswan
699	" Rafiq Ahmed	Ballia
700	" Waqar Ali Saddiqi	Amroha
701.	" Kalbe Ali	"
702	" Mohd Mehdi Taqvi	"
703	" Sheikh Farid-ud Din	Rai Bareilly
704	Dr. S Zargham ul Hyder	"
705	Hakim Atlab Ali Khan	Rampur

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707.	" Khem Singh Grewal	"
708	Vaidya Kavi Rattan R L. Bhasin, M.Sc (Tech)	"
709	" Kunwar Rameswar Singh, Kaviraj, Vachaspati	"
710	" Desh Raj, B A, Ayurveda charya	"
711	Hakim Mohammed Yusaf Qurashi	"
712	" Abdul Majid Ali, Secretary, Punjab Tibbia Committee	"
713	" Mirza Mohd Shafi.	"
714	" Hafiz Sahibzada Mohammad	"
715	" Allah Bakh Qureshi, B M F	"
716.	" Gozi M Azim Ullah	"
717.	" Mohd Abzal	"

APPENDIX A

718.	Hakim Dr. Sabit Multani, Principal, Jagid Hindustani Tibbia College.	Lahore
719.	„ Jaswant Rai Bharadwaj.	„
720.	„ Abdul Majid Saifi.	„
721.	„ Ata-ullah Hafib.	„
722.	„ Syed Nawazish Ali.	„
723.	„ Haji Badruddin.	„
724.	„ i/c. Qureshi Unani Shafa- khana.	„
725.	The General Secretary, Tehsil Tibbia Committee.	„
726.	The Secretary, Tibbia Committee.	„
727.	The Manager, Mashhur Alan Dawa- khana.	„
728.	Kaviraj Raj Kishore Mediratta, Vaidya Vachaspati.	Montgomery
729.	Hakim Ram Saran Dass, Secretary, District Ayurvedic and Unani Tibbi'Anjuman.	„
730.	„ Nazir Ahmad.	„
731.	„ Syed Ajaz Hussan Wasli	„
732.	„ Ram Lall.	„
733.	„ Maqbul Hussain.	„
734.	„ Maulvi Ghulam Mohmmad.	„
735.	„ Syed Mohd. Hussain Shah.	„
736.	Dr. B. U. Kamdar, Hony. Secretary, Medical Practitioners' Asso- ciation.	Karachi
737.	„ B. C. Bose, Professor of Pharma- cology.	„
738.	Vaidya Jethanand Premchand Kapta, Bishak.	„
739.	The Inspector General of Civil Hospitals.	N.W.F.P.
740.	Kaviraj M. L. Brahmachary, B sc., A.M.B.B.S., Ayurvedasastri, Vaidya Sastri, F.R.C.S	Dacca
741.	„ Makhan Lall Brahmachary, Principal, Jagat Bandhu Ayurved Mahavidyalaya	„
742.	Ayurvedopadhyaya Kaviraj J Mohan Dass Gupta, Ayurveda Bharati,	

	Vyakarna, Sankya, Vedanta- teertha, Vishak Sastri, Tatva Blushan, etc.	Dacca
743.	The Principal Dacca Medical College	"
744	Kaviraj G Shankar Dass, M A, Vidyavidhi Ayurved Vijnana- charya	Chittagong
745	" Kiran Lal Shastri, M A, Sankhyatirtha, Bhisaga- charya	"
746	" Nakul Chandra Sen, B A, Ayurved Shastri	Comilla
747.	" Narendra Nath Dass Sharura, Vyakarna, Kavyateertha, Seb- dashastri, Sahityacharya	"
748	" Ram Jyoti Mukhopadhyaya	Mishanpore
749	" Rabindra Ch Chakraborty, B.A., Kavyathirtha, L A M S., Bhisagratna	Mymensingh
750	Shri Girish Chandra Bhattacharjee, Kavyathirtha, Vaidyabogish	"
751	Hakim Pir Fateh Shah Haskmi, Pre- sident, Majlis e Attiba	Rawalpindi
752.	" Mahk Hakim ud din, Presi- dent, Jamaat Majlis e attiba	"
753	" Nazam Tibbi Unani, Chowk, Naya Muballa, Hindi Unani Dawakhana	"
754.	" Mohammed Saleh Ansari	"
755	" " Yalya Khan	"
756	" " Abdulhari	"
757	" " Faiz e Alam,	"
758	" Syed Asghar Ali Shah	"
759	" Ultaf Hussain Bareilly	"
760	" N Ahmed Sabir Gwalior, R M F Chaman Pharmacy	"
761	" Abdul Latif	"
762	Hakim Ghulam Mahbub Subhari,	Multan
763	Zeh tul Hukma Hakim A Moham- med	"
764	Hakim Mohd Khan	"

765.	Hakim Chaudhury Jamal ud - din, Mohd, Ibrahim	Multan
766	„ Wazir Ah	„
767	„ Mohd Syed Ullah	„
768	„ Mohammed Hussain	„
769	Raja Bashir Ullahkhan	„
770	Hakim Gosami Amar Nath, Member, Provincial Tibbi Confe rence, Mandi Kaleki	Gujranwala
771	„ Mohd Eqbal Qureshi Chishti	„
772	Qazi Nazir Ahmad Mumtazul Attiba, Muslim Unani Dawakhana	„
773	Hakim Mohammed Sharif Qureshi, Secretary Tehsil Tibbi Committee	Sialkot
774	„ Hafiz Bashir Ahmad, Secre tary Tehsil Tibbi Committee	„
775	„ Syed Manzur Hussain	„
776	Dr Badrinath Kaila, General Secretary, Unani Tibbi Committee	„
777	Hakim Sher Mohd	„
778	„ Qazi Mohd Qasim	
779	„ Mohd Shafi	
780	„ Kesar Dass	Sargodha
781	„ Mohd Abdul Rehman Khan Secretary Ayurvedic Unani Central Tibbi Board	
782	„ Haziq Ram Piyara Mall	
783	„ Inder Sen Hakim Hazaq	
784	Khadim ul Ittiba Hafiz Chan Pir Ahmed Qureshi	
785	Hakim R B Naz Manager, The popular Medical Hall	Dera Ghazi Ki
786	„ Ghulam Farid Dims	„
787	„ Gul Mohammed Ansari, D U M S (HOVS)	„
788	„ Mohd Khan Niam	„
789	„ Pandit Hans Raj	Sheikpura
790	„ Inayat Ullah	
791	„ Shah Mohammad	„
792	„ Khan Mohammad	„

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796	" Manaur Ali Qureshi	"	
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799	" i/c Azad Hind Pharmacy	,	
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830.	Tabib Faiz-Ullah.	"
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832.	Hakim A. Rashid.	Basti
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834.	" Mani Ram Pandit.	"
835.	" Pandit Devi Diyal.	"
836.	" Ram Sahai Sukh Ram Dass Kapur.	"
837.	" Lekh Raj.	"
838.	" Lekh Raj Malhotra	"
839.	" Govind Ram Malhotra	"
840.	" Jiwan Dass Malhotra.	"
841.	" Chamjit Lall Kapur.	"
842.	" Ram Lall	"
843.	" Satya Dev Akmal-ul-Hukma.	Bahawalpur
844.	" Abdul Khaliq	"
845.	" Sarwar Din	"
846.	" Mohd. Yaqub.	"
847.	" Maulvi Fazal Hussain.	Shahpur
848.	" Mohd. Ali	Maghiana City
849.	" Ram Kishan Banka.	Mianwali
850.	" Fazal Mohd, General Secre- tary, Baluchistan Unani and Vedic Tibbia Confe- rence	Quetta

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854.	" Ali Md Naz	"
855.	" Alla-Ullah	Soddra
856.	" Md Abdul Khalik	Murree
857.	" Abdul Haq.	Cambellpur Dt.
858.	" Ram Sahayee	Chiniot
859.	" Mani Ram	"
860.	" Pandit Devi Dayal	"
861.	" Ram Sahai	"
862.	" Lekh Raj	"
863.	" Gobind Ram.	"
864.	" Jiwan Dass Bahri,	"

865	Hakim Charanjit Lal	Chiniot
866	Wasanda Ram	
867	, Harbhagwan Das	
868	Ram Lall	
869	Iadha Ram	Chak Jhumra
870	, I'ez ullah Sadiq Niwang	Tehsil Shorkot
871	Amin ullah Khan	Multan Cant
872	Dr Kaviraj Rama Devi	Rawalpindi Cant
873	Kaviraj Mel tar Rani Datt Vaidya Sastri	
874	Hakim S Nazar Ahmed Shah	
875	Qazi Payal Karim	
876	Des Raj	Lyallpur
877	Md Hafiz	
878	Hakim Ali Jallemdhari	
879	Sewa Ram	
880	Mir Nour ud Din	
881	Nizam ud Din	
882	Haji Allah Bux	Lal o e
883	Md Iqbal Ahmed Qureshi	
884	Rai Ahmed	
885	Syed Nawazish Ali	
886	Hafiz Mohd Baqa ullah Khan	
887	Mohd Ibrahim	
888	Ramal Dass Muztir	
889	Qazi Amam ud D n	Shikhapura Dt
890	Ahmad Yar	
891	Chaudhary Md Bashir	
892	Abdul Shakur	
893	Nirmal Singh	
894	Sher Singh	
895	Md Ismail Haziq	
896	Abdul Shakur	
897	Md Sharif	Dinga
898	Kalu Ram Bhatia	
899	Iqbal Singh	
900	Md Latif	Sialkot
901	Akhtar Hussain Qureshi	
902	Qazi Md Bashir Quresh	
903	Nazir Ahmed	Gujranwala
904	Manzur Ahmad	
905	, Qazi Atlaf ullah	

906.	Hakim Jagan Nath.	Mandi Bhakhi- wand
907.	„ Mangal Dass Sharma.	„
908.	„ Mohd Ibrahim.	Montgomery
909.	„ Moulvi Jalal-ud-Din.	„
910.	„ Sher Mohd.	„
911.	„ Moulvi Murad Bakash.	„
912.	„ Chiragh-ud-Din.	„
913.	„ Abdul Ghani.	„
914.	„ Syed Md. Hussain.	„
915.	„ Moulvi Ahmad Din.	„
916.	„ Md. Abdullah.	„
917.	„ A'am Shah.	„
918.	„ Abdul Rahim Janjhe.	Jhang
919.	„ Sahibzada Abdulmanel.	Peshawar
920.	„ Siryan Singh	„

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922.	Vaidya Ram Dev Sharma	„
923.	„ Babu Sukh Ram Prasad, B sc., Ayurvedacharya	„
924.	Kaviraj Brij Bhushan Sen	„
925.	Shifa-ul Mulk Hakim Syed Muzabir Ahmed Sahib	„

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927.	„ Gananath Neketan Kumar.	„
928.	Dr. Harendra Chowdry Sen Sharma.	Hoogly
929.	Kaviraj Hari Gopal Chatterjee, M.A.	„
930.	„ Ramanath Devsarma	Burdwan
931.	„ Birendra Kumar Mallick, Kavi- ratna.	„
932.	Hakim Md. Anwarul Haq	Nadia
933.	„ Md. Suleman Ali	„
934.	Kaviraj Bhabesh Bhattacharji, L A.M.S., Bhishagratna.	„
935.	„ Satyendra Nath Sen, Sankhya Vyakarantirtha.	Rajbhan
936.	„ Kumudnath Sen, Vyaka- rantirtha.	„

937.	Kaviraj Surendra Nath Chakkravarty, K a v y a Vyakaranatirtha, Vishagacharya	Rajbhanj ,
938	„ Netracharya Jadu G o p a l Goswami, B A (F o) K A M S , M A O S	„
939	„ Narayan Prasad Sen Gupta	Malda
940	„ Kali Das Chattopadhyaya Vaid yasastri	Khulna
941	Shri Khatimohan Sen	, Santiniketan
942	Kaviraj S K Sen Sharma, Kavibhusan	Alipur Duan
943	„ Girija Prasanna Sen, Vaidya- Mahopadhyaya, Vidyavisarad	,
944	„ Jagesh Chandra Datt Sharma	Chittagong
945	„ Harendra M Sen	„
946	„ Bhim Charan Kolley, Kavi bhusan Ayurvedabhushan	24 Parganas
947	„ Bharat Chandra Chatterjee B A Ayurved Shastri	Calcutta
948	Lt Col R Lantan, B Sc, M B, C H B , I M S	,
949	Dr S K Chatterji M B D T M, P H D (Edin)	,
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951	Vaidyacharya Kaviraj Amala Charan Sen Gupta, Vaidyabhushan, Kavyabhushan B h i s h a g Bhushan, Ayurved Ratna kar Darshan Nidhi	,
952	Pranacharya Kaviraj Sushil Kumar Sen M Sc, Bhishagacharya Kaviratna	,
953	Kaviraj Sudhirkrishna Banarjee B A , L A M S	„
954	„ Silikantha Gupta Mazumdar, Sankhya, Vyakarnatirtha Vaidyabhushan V a i d y a binode	,
955	„ Manindra Nath Sen	,
956	„ Upendrachandra Chakravarti	„

957.	Kaviraj Amar Bhushan Ray, Bhishaga- charya.	Calcutta
958.	„ Premananda Kavithirtha Shas- tri, L.A.M.S., Bhishagratna, Vaidyashastri	„
959.	„ Manorajan Vaidyavinod, Kavya-Vyakarna-Sankhya Vedanthatirth, Kavibhu- shan, Saraswati.	„
960.	„ Jadaveswar Bhattacharjee.	„
961.	„ Devadeva Bhattacharya, M.A., Kavipurantirtha.	„
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964.	„ Lochonanda Thakur, Ayur- vedacharya.	„
965.	„ Satyakirkar Sen, Kaviratna.	„
966.	„ Biswas, Kaviratna, Vaidya- shastri.	„
967.	„ Haranmony Sen, Vaidya Shastri.	„
968.	„ Satkavi Roy, L.A.M.S., M.A.S.P., Visakratna, Vaidyashiro- mani.	„
969.	„ Ravindra Dev Bhattacharya.	„
970.	„ Rabindra Nath Chakraborty, Ayurvedashastri.	„
971.	„ Sudhir Bimal, Bhishagacharya.	„
972.	„ Surendra Kumar Das, Kavya- tirtha, Kaviratna etc.	„
973.	„ Nalini Ranjan Sen, Kavya- Vyakarana, Sankhya- Tarkatirtha	„
974.	„ Sailindra Chandra Choudhari, Ayurvedacharya.	„
975.	„ Sachindra Nath Bidyabhusan.	„
976.	„ Ram Chandra Mullick.	„
977.	„ Provash Chandra Sen, M.B.	„
978.	„ Mohindra Lal Das Gupta, Kaviratna, M.A.M.S.	„

979.	Kaviraj	Haramohan Mozumdar	"
980	"	Murari Mohan Ghosh, A.M.D	Calcutta
981.	"	Jyotish Chandra Sen, Kavi- ratna	"
982.	"	Atul Behari Dutt, B.Sc. Kavi- ratna	"
983.	"	M K Mukherjee, B.A., Ayur- veda Shastri	"
984.	"	S M Sadeq	"
985	"	Nalini Ranjan Sen	"
986.	"	Amar Bhushan Roy.	"
987.	"	Jatindra Mohan Das Gupta	"
988.	"	Nakul Chandra Sen	"
989.	"	V K. Bhattacharya	"
990.	"	Hanuman Parshad Agarwal	"
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992.	"	Shree Narayan Sharma	"
993	"	Naada Lall Hakim	"
994	"	Gurija Shankar Bhattacharya	"
995	"	Basial Majumdar	"
996	"	M L Dass Gupta	"
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1000	"	R B Lall	"
1001	"	M N De. M.B., M.R.C.P	"
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1008	"	Hirambanath Bhattacharjee	"
1009	"	Taracharan Tarkadarshan Tirtha	"
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1077	Shri Janki Nath Dhar L A M S Ayur vedacharya	
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1084.	„ Budhi Parkash Sharma, Ayur- veda Bhushana.	„
1085.	„ Narayana Rao Ardikar.	„
1086.	Vaidyaratna Shri Ranga Rao, H.A.V.S.	„
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1089.	„ Bhagwan Shastri Kehdarkar.	„
1090.	„ Yajnadutt Sharma Upadhyaya.	„
1091.	Kaviraj Pandit Gaya Parshad Shastri, Vaidya	„
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1093.	„ Abdul Wahid Soori	„
1094.	„ Shabir Ahmed.	„
1095.	„ Mirza Fatihullah Baig, Tabib.	„
1096.	„ Md. Hassan Ali Modak.	„
1097.	„ Md. Abdul Qadir.	„
1098.	„ Khurshid Hussain Sahib	„
1099.	„ Syed Insa.	„
1100.	„ Md. Abdul Rehman.	„
1101.	„ Abdul Rashid Sahib	„
1102.	„ Md. Dildar Khan.	„
1103.	„ Md. Yussaf Ali	„
1104.	„ Md. Dm.	„
1105.	„ Syed Wahid-ul-Dm.	„
1106.	„ Md. Abdullah	„
1107.	„ Syed Ahmed Padshah Qadir	„
1108.	„ Mutlab Hussain	„
1109.	„ Dustigir Ali Shah.	„
1110.	„ Md. Faiz-ul-laha Sahib.	„
1111.	„ Shabir Ali.	„
1112.	„ Md. Abdul Hamid Saddiqi.	„
1113.	„ Syed Jamahed Ali.	„
1114.	„ Syed Mohmood.	„
1115.	„ Bashir Ahmed Khan	„
1116.	„ Dm Md. Punjabi	„
1117.	„ Safdaz Ali	„
1118.	„ Izzat Hussain Sahib	„
1119.	„ Md. Zahhim Narain Goda.	„

1120.	Hakim Chenanaya	Hyderabad
1121.	" N Shri Ramuloo	"
1122.	Pandit Chandra Bhanu Sharma, Ayur- veda Visharad	"
1123.	Shri Pandit Bhawani Parshad Pandya, Vaidya Ayurvedacharya	"
1124	Pandit Trivenkatacharya, Vaidya	"
1125	" Varadecharya Vaidya, Nyaya Iankar	"
1126	" Lakshmi Narain Shastri	"
1127	Ayurvedacharya Bihari Chaturvedi	"
1128	Shrimati Gayatri Devi Upadhyaya	"
1129	" Shanti Devi, Upadhyaya	"
1130	Shri Venkatrama Rao, Ayurveda Visharad	"
1131	Shrimati Indra Devi, Shashtrini, Vaidya	"
1132	Shri Ram Krishna Pandya, Ayur- veda Visharad, Ayurved Vaidyaratna	"
1133.	Shri Kalyan Mall, Vaidya	"
1134	" Shankar Balwant Devakar	"
1135	" Nagesh Dutt Shakal, Ayur vedacharya	"
1136	" Bala Kishan Raj Goswami Ji	"
1137	" Radhakrishna, Bhishagacharya	"
1138	Dr Vinavak Rao Palnitker, L M S	"
1139	" J D More A V L M H	"
1140	Shri Venkat Rao Datar Swami Gobind Tirth	"
1141	Shri Jaiwant Jineshwar, Ayurve da Visharad	"
1142	Vaidya Parmeshwari Parshad Ashtana, Ayurvedacharya	Sikanderabad
1143	" Aravind H. Tanhale D A S F (Bom), L D S C	Latur
1144	" V N Aousekar, D A S F	"
1145	Vaidya Nemi Nath	"
1146	" Basudeo Shastri	"
1147	" Bajnatha Balmukund Zanvar	"
1148	Vaidya Lingappa Tukaram Sheta	"
1149	" Shankardeo Gopal Palkak	"
1150	" Shri Krishna Gopal Johari.	"
1151	" Kanhaiyalal Varmā	"
1152	" D S Shrishikar.	"

1153.	Vaidya Radhakrishna Ganesh Pathak.	Latur
1154.	" Moraji Bhai R. Chrvan.	"
1155.	Krishna Nagesh Joshi.	"
1156.	" Nandlalji Vyas.	"
1157.	" Nandlal Rambaksha Doctor.	"
1158.	" Mahadeo Balkrishna Prabhu.	"

FARIDKOT STATE

1159.	Hakim Md. Hyat Khan Hyder.	Faridkot
1160.	" Md. Nissar Ahmed Podhi.	"
1161.	" Pandit Puran Chand.	Deogam
1162.	" Md. Yaqoob.	Kapurthala
1163.	" Md. Yaqub Sahib.	"

JAIPUR STATE

1164.	Vaidya Jai Ram Dass Swami. Bhishagacharya, Ayurvedmartand.	Jaipur City
1165.	" Iswar Dass Swami, Bhishagacharya.	"
1166.	Hakim Md. Halim Sabib.	"
1167.	" Syed Sakhawat Hussain Sahib.	"
1168.	" Md. Ibrahim Khan	"
1169.	Shri Manyal Dass Swami.	"
1170.	" Ram Diyal Sharma.	"
1171.	Pandit Prahlad Rai, Ayurvedalankar.	Sikar
1172.	Vaidya Lakshmi Kant Sharma, Bhishagacharya.	Fatihpur
1173.	" Mukund Ram Yogi.	"
1174.	Officer i/c. Seth J. P. Bhartia Hospital	"
1175.	Pandit Vishveswar Lall Sharma, Vaidya.	Nawab Garh
1176.	Shri Yugendar Sharma	"
1177.	" Sita Ram Banwari Lal Joshi.	"
1178.	Vaidya Jhumar Mall Sharma.	Alsisar
1179.	" Baij Nath Sharma, Ayurvedacharya.	"
1180.	" Mahabir Parshad Sahib, Ayurvedacharya.	Chirawa
1181.	Shri Jai Dev Sharma Vaidya.	"
1182.	Vaidya Jawala Prashad Sharma.	" Bodbad
1183.	Vaidya Mohan Lall Ojha Vaidya Ratan, Vaidyabhushan, Ayurvedavaidyacharya.	Amarsar

1184	Shri	Nagar Mall Sharma	Islampur
1185	"	Vinchi Lall Sharma, Ayurveda- charya	"

TRAVANCORE STATE

1186	Dr	R N Nayak Vaidyakalanidhi	Alleppey
1187	"	A Gopala Pillai, L I M	Travancore
1188	"	A Narayanan Moss	Kottayam
1189	"	N S Moss	"
1190	Ayurvedacharya	Dr N Kesava Pillai,	Trivandram
1191	Shri	K A Raghavan Pillai	"
1192	"	N P, Kurukkal Ayurvedacharya	"
1193	"	V Bhargavan	"
1194	"	Kanniyoor K N Keshava Pillai	"
1195	"	H Rana Krishna Iyer	"
1196	"	V Ramamoorthy	"
1197	Sjt.	B Nilakanta Vaidyar	"

COCHIN STATE

1198	Dr	K Bhargavy, L I M	Trichur
1199	Shri	P Vasudevan Nambeesan	"
1200	"	C H Sankaran Vaidyan	"
1201	Vaidya	Sreemoolanganam	Cochin
1202	"	T Neelankandan Nambiar	"
1203	Shri	K E Abraham Bala Vaid yan, Mulanthiruthi	"
1204	"	K Kalankanta Menon	"
1205	Ayurvedabhushana	T Achutha Warriar	"
1206	Shri	Ramakrishna Panicker	Kandessan kadam
1207	Medical Officer i/c	Chief Physician	Ernakulam
1208	Honorary Chief Physician	M Nara yanan Nambiar	"
1209	Senior Physician	Pattamangalam Ayur vedic Hospital	Azhicode
1210	Junior Physician,	Govt Ayurvedic Hospital	Thripunithura
1211	Vaidyan	M K Nambuthri	Vidhal Koll
1212	Senior Physician,	Ayurvedic Hospital	Kodakara

CUTCH STATE

1213	Vaidya	Waghji K Solanki	Dewa Mundra
1214	"	Nanalal M Pathak	Brahmpuri
1215	Medical Officer i/c	The Anglo Ayur vedic Dispensary	Bhunj

BIKANER STATE

1216.	Vaidya Dina Nath Vyas	Bikaner
1217.	Kewal Ram Swami, Bishgaratna.	"
1218.	Shankar Dutt Mohata.	"
1219.	Babu Ram Sharma	Ratangarh
1220.	Purna Nand Shastri	"
1221.	Makhan Lall Sharma, Ayurvedacharya.	"
1222.	Mani Ram Sharma	"
1223.	Shri Hanumat Parshad Shastri.	"
1224.	Vaidya Giriya Shankar Vara, Bhishagacharya.	Ratlam
1225.	Vaidya Fateh Shankar Sharma	Bundi

JODHPUR STATE

1226.	Shri Manchand Vaidya.	Manik Chowk
1227.	Raj Vaidya Pandit Ganeshdas Ramdeva.	Jodhpur
1228.	Kaviraj P. L. Vyas, L.A.M.S.	"
1229.	Pandit Hari Shastri, Darshan & Ayurvedacharya.	"
1230.	Shri Vays Saropkar	"
1231.	Vaidya Lalji Gobindji.	Marwar

MORVI STATE

1232.	Vaidya Jiwan Lall Hari Shankar Bhatt.	Morvi
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NORTH COORG

1233.	Dr. M. A. Changappa, L.I.M.	Bhagmandala
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SOUTH COORG

1234.	J.R. Asranna, L.I.M.	Virajpet
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MIRAJ STATE

1235.	W. O. Airan Dean.	Miraj
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MAYURBHANJ STATE

1236.	Kaviraj i/c. Ayurvedic Dispensary.	Baripada
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DHAR STATE

1237.	Shri G. M. Sharoti Vaidya, Ayurvedacharya.	Dhar
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BARODA STATE

1238	Dr Saradchandra N. Vaidya	Surat
1239	Vaidya Bulal hai M Patel, Ayurveda charya	Patan (N G)
1240	„ Trikam Lall Raval	„
1241.	„ Vishnu Parshad Nand Lall	Borsadwala
1242	„ Raj Chanpat Lal Nand Lall,	„
1243	Shri Brahmaddatt, Ayurved lankar	Punchamaha
1244	Prdahan Mantri Amba Parshad Khande Rao Bawoot	Baroda
1245	Dr Rajaninath R Gharekan	„

INDORE STATE

1246	Shri Vaidya Sagar Pande, L M P	Indore
1247	Chairman, Nanasing Committee, Ayur- vedic and Unani Dispensaries	„
1248	The Inspector General of Hospitals	„

UJJAIN

1249	Pandit Vasudev Shastri	Ujjain
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GWALIOR STATE

1250	Vaidya Kashi Nath Mukund Vekanetar, Ayurvedacharya, Vaidyalankar	Gwalior
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KOLHAPUR STATE

1251.	VaidyaraJ Govind Gundo Vamanacharya	Kolhapur
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BIJAPUR STATE

1252	Vaidya K R Kulkarni	Bijapur
1253	„ S R Harenath	„

KATHIAWAR STATE

1254.	„ Shambu Prasad R Bhatt	Bhavanagar
1255	„ Vallabh Ram Kamp	„
1256.	Kaviraj Dhiraj Ram Deya Ram Shastri	Rajula

RAJKOT STATE

1257	VaidyaraJ Kandas Ratnadas, Gunda- wadi	Rajkot
1258	Vaidya Dayalji HansaraJ, Trivedi	„
1259	„ Chandra Shankar Jatashankar Pandya	„
1260	„ Trambaklok Dyal Ji	„
1261	„ Pana Chand JasharaJ	„

1262.	Vaidya Purushottam Bhai Raja Bhai.	Rajkot
1263.	" Kanji Dharamshi Mirami.	"
1264.	" Shantilal R. Lall Pathak.	"
1265.	" Shanji Dhawanbhai Dhamelia,	"
1266.	" Ramji Bhai Kalabhai Patel.	"
1267.	" Natwar Lall Shamji Bhai Dhamelia.	"
1268.	" Mohan Lall Dungushi	"
1269.	" Mahashankar Narottam Bhat.	"
1270.	" Bhaskar Rai Mal Bhai.	"
1271.	" Devkaram Savachand Moodi.	"
1272.	" Chandan Gauri Dev Karan Mody.	"
1273.	" Amritlal Vithaldas	Kathiawar
1274.	Shri Mohindar Chandra Bhattacharjee, M.A S F	Agartala

SUPPLIMENTARY LIST.

BIHAR PROVINCE

1275.	Shri Hari Lal Kalidas Vaidya	Betulgunj
1276.	" Gokulprasad Vrajlal Vaidya.	"
1277.	Hakim Md. Idris Saheb	Patna
1278.	" Akur Rehman Saheb	"
1279.	" Abdus Shakoor Saheb	"
1280.	" Abdul Ahd Sahib.	"
1281.	Pandit Ram Narayan Sharma.	"
1282.	Inspector General—Civil Hospitals.	"
1283.	Pandit Kapil Deo Sharma	"
1284.	Vaidya Ram Rakshak Pathak	Monghyr
1285.	" Preyavart Sharma.	"
1286.	Kaviraj H. N. Chaturvedi.	Bihar
1287.	Pandit Kalika Misra.	"
1288.	" Nand Kishore Misra	"
1289.	" Bahirav Giri	Muzaffarpur
1290.	" Kaviraj Manmatha Nath Bandhopadhyaya.	Bhagalpur

BOMBAY PROVINCE

1291.	" A. K. Sambu.	Bombay
1292.	" The Secretary, Ayurved Seva Sangh	Nasik

MADRAS PROVINCE

1293.	Dr. Mir Tafil Ahmed,	Madras
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THE UNITED PROVINCES

1294	Hakim Vazir Ahmad	Etah
1295	Dr A C Bannerjee, Director of Medical and Health Services in U. P.	"

DELHI PROVINCE

1296	" Jivraj N Mehta, M D	New Delhi
1297	Vaid Des Raj, Ayurvedacharya	
1298	Vaidya Guru Dattji M Sc	,
1299	Rajvaidya Sudhanwa Vidyalankar	
1300	Hakim B N Sharma	,
1301	Kaviraj Aushkosh Mazumdar, M B A S	,
1302	Pandit Nand Nath Ji	,
1303	Kaviraj Madan Mohan Chopra	Delhi
1304	" Khazan Chand, B A	"
1305	Hakim Md Kamil Khan	,
1306	Kaviraj Vaidya Sakla Nand Shastri	,

MALABAR

1307	Dr J Shah	Calicut
1308	Shri Ramesh S M Prabhu B A, M Sc	Tellichery

APPENDIX A-IV (4)

PRIVATE DAWAKHANAS—UNANI-TIBBI AND AYURVEDIC
ETC,—WHICH HAVE ANSWERED QUESTIONNAIRE NO IV
ISSUED BY THE COMMITTEE

(List A)

AJMFR

1	Krishan Gopal Ayurvedic Dharmarth Aushadhalaya Kalera bogla	Ajmer
2	Chashma Hayat Pharmacy	,
3	Unani High Dawakhana, Doggi Bazar.	
4	Sri Kalyan Ayurvedic Aushadhalaya	Kekri
5	Shri Jain Aushadhalaya Bagari	Sajjanpur,

ASSAM

6	Dacca Ayurvedu Pharmacy Ltd	Sibsagar
7	Seva Aushadhalaya	,
8	Bazbarna Aushadhalaya	

BIHAR

9	Jamali Dawakhana Sabzibagh	Patna
10	The Dacca Ayurveda Pharmacy Ltd	Bhagalpur
11	Shri Hari Lal Kahdas Vaidya	Betulgunj
12	" Gokulprasad Vrajlal Vaidya	,

BOMBAY

- | | |
|--|-----------------------|
| 13. Ayurveda Chikitsalaya, 637, Shukravar. | Poona—2 |
| 14. Shri D. K. Sandu Bros. Chembur Ltd.,
Manufacturing Chemists and
Druggists. | Bombay |
| 15. Unjha Pharmacy Ltd. | Unjha
(N. Gujarat) |
| 16. Ayurved Dharmarth Dawakhana Man-
dal, 45, Cathedral Street. | Bombay |
| 17. Lariya Dharmarath Aushadhalaya, 90,
Gaiwadi. | " |
| 18. Shri Laxmikeshav Aushadha-Shala. | Rajapur. |
| 19. Ayurveda Rasashala Poona Ltd, Karve
Road, Deccan Gymkhana. | Poona 4 |
| 20. Municipal Ayurvedic Dispensary. | Bhusaval E K. |
| 21. Dawakhana Mueen-e Sihet, Rani Talab. | Surat |
| 22. Shri Jam Dharmarth Aushadhalaya,
S. Seth Gulab Chand Panna Lall,
Bumb | Bhusaval |
| 23. Shri Narayan Ayurved Chikitsalya,
Pinjrapol. | Ahmedabad |

CENTRAL PROVINCE & BERAR

- | | |
|--|---------------|
| 24. Arya Chikitsalaya, Lakshami-Pura. | Saugar |
| 25. Himalaya Arya Aushadhalaya, Walker
Road | Nagpur |
| 26. Arya Parbha Aushadhalaya, | Katni |
| 27. Shri Krishan Aushadhalaya, Gangadhar
Plots. | Akola (Berar) |
| 28. Batuk Bhairav Aushadhalaya, Jawaber
Gunj | Jubbulpore |
| 29. Ayurved Sanshodhan Samiti | Nagpur |
| 30. Shri Mohata Dattavya Aushadhalaya. | Hingan Ghat |
| 31. Madhya Prantya Ayurvedic Pharmacy,
Dadiya. | Balaghat |
| 32. Ayurvedic Aushadhalaya, Post Nanda
Gomukh. | Nagpur |
| 33. Durga Arogya Mandir, Main Road, Sita-
berdi | " |

DELHI

- | | |
|--|-------|
| 34. Kaviraj Vaidya Sakla Nand Shashtri,
C/o The India Stores, Chandni
Chowk, | Delhi |
|--|-------|

35.	Shri Adittiya Aushadhalaya, Mohalla Dasan	Delhi
36	Lalla Umrao Singh Dharmarath Aushadhalaya, Bazar Sita Ram, Gali Arya Samaj	"
37.	G. D. Joshi's Ayurvedic Charitable Dispensary	"
38	Bhardwaj Ayurvedic Company, Subzi Mandi	"
39.	Birla Mills Aushadhalaya, Birla Lines	"
40.	Ishvarya Aushadhalaya, Kucha Pati Ram, Bazaar Sita Ram.	"
41.	Hanuman Churan Karyalaya, Khariboli, Phatak Habash Khan.	"
42.	Vishavhiteshi Aushadhalaya, Kucha Pati Ram, Bazaar Sita Ram.	"
43.	Vaidic Aushadhi Bhandar, Chunamandi, Pahargunj.	"
44.	Ram Tel Pharmacy, Charkhewalan	"
45	Shri Dau Ji Datavya Aushadhalaya, Maidan Parade	"
46.	Shri Narayan Aushadhalaya, Masjid Khajur	"
47.	Swasthya Sukh Sadan, Yusuf Sarai	"
48.	Dhanwantri Aushadhalaya, Dharmapura	"
49.	Usmani Dawakhana Phatak Habash Khan	"
50.	Aksiri Dawakhana, Kalan Mahal	"
51.	Karimi Dawakhana, Pahargunj	"
52.	Wahid Alam Dawakhana, Chitli Qabar	"
53	Afaqia Dawakhana, Subzi Mandi	"
54.	Dawakhana Unani Hira Lal, Kashmiri Gate	"
55	Dawakhana Banarsi Das Fateh Chand, Naya Bans	"
56.	Shafa-ul-Hind Dawakhana, Pahargunj	"
57.	Jalinus Dawakhana, Mohalla Roadgaran	"
58	Ayurvedic and Unani Dawakhana	"
59..	Faiz-ul-alam Dawakhana, Unani Bazaar, Pahargunj.	"
60	Indian Scientific Pharmacy, Subzi Mandi	"
61.	Sadiq Dawakhana, Matia Mahal	"
62.	Aam Dawakhana, Bazar Chitli Qabar.	"

63.	Karimi Dawakhana, No. 2, Near Jama Masjid, Pahargunj.	Delhi
64.	Dawakhana Hind, Ballimaran.	"
65.	Naya Dawakhana, Delhi Gate.	"
66.	Bara Dawakhana Unani.	"
67.	Shamsi Dawakhana, Ballimaran.	"
68.	National Dawakhana, Kumra Bangash.	"
69.	Akbari Dawakhana, Subzi Mandi.	"
70.	Afazal Dawakhana, Terah Bahram Khan.	"
71.	Sulemani Dawakhana	"
72.	Dawakhana Baqai, Bazar Chitli Qabar.	"
73.	Dawakhana Shafa Bakash.	"
74.	Dawakhana Nau Rattan, Frash Khana	"
75.	Dawakhana Fakhar-ul-Hind, Subzi Mandi	"
76.	Usha Unani Medical Hall.	"
77.	Indar Prasth Aushadhalaya, Pahargunj	New Delhi
78.	Kiami Dawakhana, Bazaar Sita Ram	Delhi
79.	Aksri Unani Pharmacy, Subzi Mandi	"
80.	Dawakhana Habibia, Kucha Pandit.	"
81.	Zamzam Dawakhana, Ajmar Gate.	"
82.	Nirala Dawakhana, Tirah Bahram Khan.	"
83.	Mubarak Bad Dawakhana, Pahargunj	"
84.	Dawakhana Zakai, Hauz Kazi.	"
85.	Arif Dawakhana, Phatak Habash Khan	"
86.	Dawakhana Ahasani, Jung Pura.	"
87.	Dawakhana Bab-ul-Shafa, Mohala Narian.	"
88.	Unani Dawakhana, Bazar Ballimaran	"
89.	Karimia Dawakhana, Hamilton Road.	"
90.	Syarifi Dawakhana Ltd, Ballimaran	"
91.	Indo-Genuine Chemical Works	"
92.	Camboj Pharmacy and T. B. Dispensary, Shahdra.	"
93.	Shafi Dawakhana Unani, Pahargunj	"
94.	Nau Bahar Pharmacy, Gali Shahtara.	"
95.	Hindi Dawakhana, Tirah Bahram Khan.	"
96.	Nasim-i-sahat Dawakhana, Farash Khana	"
97.	Khalid Dawakhana, Subzi Mandi.	"
98.	Ismail Unani Dawakhana, Lal Kuan.	"
99.	Shahi Matab (Regd.) Post Box 121.	"
100.	Nisar Dawakhana, Ballimaran.	"
101.	Namwar Dawakhana.	"

102.	Ansari Dawakhana Bhogal	Delhi
103	Chaman Dawakhana, Mori Gate	"
104	Baqai Pharmacy, Chithi Qabar	"
105	Tarhath Dawakhana, Shahdra	"
106	Zenana Dawakhana Kucha Chelan	"
107.	Bashi Dawakhana, Kamra Bangash	"
108	Dawakhana Hadi ul Sahat, Ganda Nala	"
109	Mulki Dawakhana Farash Khana	"
110	The Unani & Co., Rohilla Khan Street	"
111	Dawakhana Swadeshi Najafgarh	"
112.	Bazme Atibba (Regd), Turkman Gate	"
113	Bhaskar Ayurvedic Pharmacy, Khari Baoli, Phatak Nabash Khan	"
114	Shri Agarwal Jain Dharmartha Aushadhalaya, Chattashahji Chawri Bazar	"
115	Mazumdar Ayurvedic Works, 90/8, Connaught circus	"

EAST PUNJAB

116	Shree Veer Aushadhalaya, Railway Station, Vir Bhawan, Hissar.	Punjab
117	Rasayan Karyalaya Abohar	Ferozpur
118	Kulash Aushadhalaya Garhdiwala	Hoshiarpur
119	Punjab Ayurvedic Pharmacy, Akali Market	Amritsar
120	Shri Bhupendar Ayurvedic Aushadhalaya	Patiala
121	Sharma Ayurvedic Pharmacy	Hissar
122	Prem Aushadhalaya, Katra Jaimal Singh Bazar Har Charan Dass	Amritsar
123	Shive Paharmey	Ambala
124	Chandra Gupta Aushadhalaya, Tohana	Hissar
125	Rai Sahib Kirpa Ram Ayurvedic Aushadhalaya,	Rohtak
126	Shafakhana Azimi Bechuawan, Kathgarh	Hoshiarpur
127	Unani Dawakhana	Karnal
128	Public Dawakhana Indri	"
129	Sadat Medical Hall Unani Outside Syedan Gate	Jullundur
130	Karimi Dawakhana, Mukhul Tehsil Zera	Ferozpur
131	Gujrat Pharmacy, Chowk Baba Atal Sahib	Amritsar
131 (a)	The Hindustani Dawakhana, (Regd)	Ambala Cantt

132.	Rafiq-i-Alam Dawakhana, Mohalla Mukhdumzadgan, Panipat.	Karnal
133	Desi Dawakhana, Indora, Tehsil Nurpur	"
134	Hanefa Mattab, Dhogarhi, Tehsil.	Jullundur
135	Sharma Medical Hall, V. & P. C. Rani Pur, Via Adam Pur.	"
136.	Dawakhana Rahmania, Chowk Ranek Bazar.	"
137.	Dar-ul-Shafa Karimia, Dhogarhi	"
138	Dawakhana Surwar Zendgi. Nur Mahal.	"
139.	Dawakhana Unani, Bhangala, Tehsil Dasuya.	"
140.	Unani Shiv Pharmacy, Phagwara Road.	"
141	Unani Medical Hall, Rahman Manzil	"
142	Adarsh Aushadhalya Regd. Mohalla Mahandruan.	"
143	Shadai Dawakhana, Dusuya.	Hoshiarpur
144	Ayurvedic and Unani Tibbi Association, Mani Majra.	Ambala
145.	Tibbia Committe, Shahkot.	Jullundur
146	Nojeevan Pharmaceutical Works, Katra Sufaid.	Amritsar
147	Vikram Shafakhana, Panjaur	Hoshiarpur
148	Nabvi Dawakhana, Sarai Amanat Khan.	Amritsar
149.	Kademi Dawakhana, Nur Mahal.	Jullundur
150	Afghani Bara Dawakhana, Panipat	Karnal
151	Shahi Medical Hall, Mohalla Mukhdum.	Panipat
152	Golden Pharmacy. Ayurvedic.	"
153	Kademi Dawakhana Unani, Bazar Chowk, Qalandar Sabhib	Panipat
154.	Doaba Medical Hall, P. O. Gulab Shah.	Jullundur
155.	Guru Nanak Ayurvedic, Aushadhalaya, Bhundian, P.O. Baharam Sarashta.	"
156	Dawakhana Mufid-ul-Ajsam, Darar.	Karnal
157.	Shafakhana Qadria, Attari	Amritsar
158	Vaidya Gurudayal Singh, Chamkaur Sahib.	Ambala
159.	Unani Dawakhana, Taragarh.	"
160.	Unani Dawakhana.	Gurdaspur
161.	Ishwar Medical Hall	Amritsar
162.	Punjab Ayurvedic Pharmacy, 60-61, Akali Market.	"
163.	Islami Dawakhana, V. Chema Kalan Sarai Amanat Khan.	"

MADRAS

- | | | |
|-----|--|---------------|
| 164 | Shree Krishna Ayurvedic Pharmacy,
Elore | West Godavary |
| 165 | M A Pharmacy 'Padmalayam' Raja St , | Coimbatore |
| 166 | Gopala Oushadhalayam | Shiyali |
| 167 | Sastreeya Oushadhamalayam Governor
peta | Bezwada |
| 168 | Alwar Medical Hall, Mylapore | Madras |
| 169 | The Trichy Ayurvedic Union Limited,
17, Chinnalkada Street, Teppa
kulam | Trichinopoly |
| 170 | Shree Kerala Kalpakam Ayurvedic
Pharmacy | Nagercoil |
| 171 | Sri Krishna Vilasom Ayurvedic Phar
macy and Government Grant in
Aid Vaidyasala | Quilon |
| 172 | "Nagnar Research Clinic", Srinivas
House | Musiri |
| 173 | "Jeevanada Vaidyasala | Tellicherry |
| 174 | Tripurasundari Aushadhalayam | Elore |
| 175 | Venkateswara Ayurveda Nilayam Chin
taluru Village | Alamuru |
| 176 | Ayurveda Kuteeram | Guntur |
| 177 | Rev 'Zacha' Bharat Dispensary,
Holland Road | Negapatam |
| 178 | Sree Rama Mohana Ayurvedic Dharma
Vaidya Sala Sangham | Bezwada |
| 179 | P Subbaroy Ayurveda & Siddha Medical
Works Sri Venkatesaperumal Coil
Sannathi | Tanjore |
| 180 | Atreya Ayurvedic Works Tennur
Road | Trichinopoly |
| 181 | Saleh Pharmacy, No 9, Gulam Murtuza
Street, Mount Road | Madras |
| 182 | Mahboob Pharmacy, No 9 Gulam
Murtuza Street Mount Road | |

THE UNITED PROVINCES

- | | | |
|-----|---|-----------|
| 183 | National Drugs and Pharmaceutical
Works Viceroy Road | Dehra Dun |
| 184 | Hiteshi Ayurvedic Dharmartha Chikit
salaya | Barabanki |
| 185 | Inder Aushadhalaya Kanwari Ganj
Road | Ahgarh |

186.	Lalit Hari Ayurvedic College Pharmacy.	Pilibhit
187.	Shri Lok Hitkari Ram Rasayan Shala.	Meerut
188.	Shri Gianenendar Aushdhalaya.	Etawah
189.	Shri Jiwan Amrit Aushadhalaya, Mumukshubhawan.	Benaras City
190.	Unani Dawakhana.	Etah
191.	Herdilaziz Unani Dawakhana.	"
192.	Hakim Vazir Ahmed Badauani.	"
193.	Hindustani Pharmacy.	Meerut
194.	Chandrajot & Co., (Regd.)	Tajpur Estate (Bijnor)
195.	Dawakhana Shafia (Regd.), Unani Phar- maceutical Works.	Budaun
196.	Ijadi Dawakhana.	"
197.	Unani Dawakhana.	Pilibhit
198.	Unani Dar-ul-Shafa.	"
199.	Dawakhana Mouiun-ul-Ilaj.	"
200.	Sheri Unani Dawakhana.	"
201.	Unani Dawakhana.	"
202.	Dawakhana Vedic and Unani, Jagan Lal Kulwant Rai Attaran.	Dehra-Dun
203.	The Ayurvedic Pharmacy, Benaras Hindu University.	Benaras
204.	Vaidya Brahmanand Dixit, Nayaban Lohamandi	Agra
205.	Raturi Pharmacy.	Dehra-Dun (U.P.)
206.	Chand Aushadhalaya, Meston Road.	Cawnpore
207.	H. A. H. Charitable Dispensary.	Allahabad
208.	Chaturvarg Aushadhalaya.	Shamli (Muza- ffar Nagar)

WEST BENGAL

209.	Ayurved Baijnanik Hall.	Kalna
210.	Radharani Ayurveda Sakti Aushadha- laya, (Vill) Rajarhat, Sirakol.	24 Parganas
211.	Bijoy Ratna Bhavan, 5, Kumartuly Street.	Calcutta
212.	"Gananath Nektan" Ayurved, Vaidya- laya and Aushadhalaya, Sir, B. C. Road.	Burdwan
213.	Vaidyaraj Pharmacy, 46, Beadon Street.	Calcutta
214.	The Banga Luxmi Ayurveda Works, 11, Clive Row.	

215.	Sanjivan Aushadhalaya, Bagerhat Khulna.	Calcutta
216.	Kalish Ayurveda Bhavan, 4, Pudapukur Road, P. O. Elgin Road.	"
217.	Bangashree Ayurvijnan Mandir and Laboratory, 94, Cornwallis Street.	"
218.	Gangrprasad Adi Ayurvedya Aushadhalaya, 9/1, Kumartuli Street.	"
219.	Satish Ayurved Bhawan, English Bazaar Malda	"
220.	Unani Charitable Dispensary, Hooghly (Imambarah, P. O.	Hooghly
221.	Dacca Unani Pharmacy, P. O. Basirhat.	24 Parganas
STATES		
222.	Shri Digambar Jain Aushadhalaya, Dharamshala Mandir Diwan Ji	Jaipur
223.	Shree Saraswati Ayurveda Aushadhalaya P. O. Chirawa	"
224.	Shri Maheshwari Ayurveda Datavya Aushadhalaya P.O. Islampur.	"
225.	Pardhan Chikatsak, Shri Shyam Ayurvedic Pharmacy.	"
226.	Seth Chatur Bhuj Piramall Ayurvedic Aushadhalaya P. O Bagar.	"
227.	Rai Bahadur Seth Gorakh Ram, Ram Parthap, Chamiar Aushadhalaya.	Fatehpur-Jaipur State
228.	Shri Sarvajanic Aushadhalaya, Shri Madhoopur	Jaipur
229.	Gram Sewasadhan Rasayan Shala, Dosa	Jaipur
230.	Venkatesh Ayurvedic Chikitsalaya	Didwana (Jodhpur)
231.	Maharana Ayurvedic College.	Udaipur
232.	Shri Martand Ayurved Vidayalya	Kotah (Rajputana)
233.	Shiva Aushadhalaya, Lahori Gate	Patiala
234.	Ram Krishan Pharmacy, Urdu Bazaar	Hyderabad (Dn)
235.	Shri Satyanarayan Aushadhalaya	P.O. Napasar, Bikaner State
236.	Arogya Bhawan	"
237.	Shri Sunjewan Aushadhalaya, P. O. Napasa.	"
238.	Maharaja Pharmacy.	Jodhpur
239.	Shri Saravjanik Aushadhalaya.	Nawalgarh

240.	Shri Vanshidhar Bhagat Datavya Aushadhalaya.	Nawalgarh
241.	Ayurveda Vilasa Aushadhalaya.	Seringapatam (Mysore State)?
242.	Dawakhana Alkosar, Amirakadal.	Srinagar (Kashmir)
243.	Maqbule i-Am Unani Dawakhana (Regd.)	Karalakhad
244.	Dawakhana Ayurvedic & Unani College.	Mysore
245.	Nafis Dawakhana.	Rampur State
246.	Dawakhana Hakim Hafiz Muzaffar Hussain Khan, Ghat Darwaza.	Jaipur State
247.	Dawakhana Tabani, Chand Pol.	"
248.	Unani Dardmand Pharmacy, Chand Pol Bazar.	"
249.	" Pharmacy, Mohalla Kumharan, Chowkri Ram Chander Ji.	"
250.	Rajputana Chemical Works, Ramganj Bazar.	"
251.	Dawakhana Unani, Shangaredi.	Hyderabad (Dn.)
252.	Safa Khana Unani, Georai, Bhair.	"
253.	Dawakhana Unani, Qasba Andola, Jewargi, Gulberga Sharif.	"
254.	" Unani Sarkare-Ali, Raichur.	"
255.	" Unani Sarkare-Ali, Par- bhani.	"
256.	" Unani Bhair.	"
257.	" Unani Sarkare-Ali, Auran- gabad.	"
258.	" Mahbub Nagar.	"
259.	" Unani Sarkare-Ali, Yadgir, Gulberga Sharif.	"
260.	" Hakim Mohd Azam Sadiqi, Bazar Nurul-Umra.	"
261.	" Unani Sarkare-Ali, Khemum, Warangal.	"
262.	" Shafipur, Aurangabad.	"
263.	" Unani Sarkare-Ali, Momin Abad.	"
264.	" Unani, Gangapur, Auran- gabad.	"

265	Dawakhana	Unani Sarkare Ali, Nander	Hyderabad Dn
266	"	Unani, Kamarodi, Nizam Abad	"
267.	"	2nd grade Unani, Sarkare-Ah, Madok	"
268	"	Unani Sarkare Ali, Gulberga Sharif	"
269	"	Kuntar, Aurangabad	"
270	"	Unani Ashti, Behar	"
271	"	Unani Sarkare Ali, Jalna Aurangabad	"
272	"	Unani Sarkare-Ali, Usman Nagar, Patta K h a n a Usman Nagar, Nander	"
273	,	Unani Sarkare Ali, Qasba Umri, Nandher, Dn	"
274	,	Unani Sarkare Ali, Pissargana, Aurangabad	"
275	"	Retier Nagaram, Warangal	"
276	"	Unani Sarkare-Ali, Parbhan	"
277	R H	Ayurved Ashram P O Mukher, Nandher	"
278	Dawakhana	Unani 2nd grade, Miryal Goda, Golkanda	"
279	"	(Hakim Mysori) Aquta Uli-awa Bibi	"
280	"	Unani Sarkare Ali, Bhuwan Nagar	"
281	"	Unani, Solkand Golkanda	"
282	"	Unani 2nd grade, Armoor	"
283	Shafa Khana	Unani, Sarkare Ali, Shora Pur	"
284	Dawakhana	Deori Sadiq Jang, Kali Kaman	"
285	"	Unani Tamsa, Magartown, Nandher	"
286	Shafa Khana	Unani Sarkare Ali, 1st grade, Bedar Sharif	"
287	Dawakhana	Unani Sarkare Ali, Gulberga	"
288	Ayurvedic &	Unani Dawakhana Basti Dogran	Farid Kot

289. Victory Pharmacy, Faridkot
290. Pratap Martand Aushadhalaya, 161-
Biyabani Indore City
291. Charak-Arogya-Mandiram, 83 Khajuri Bazar, " "
292. Ayurvedic Compound Tinctures, Ltd.,
Alleppey. Trivandram
293. Dhanwantri Vaidyasala, Thodupuzha, Travancore
294. Cutchi Jadi Bocti Dawashala, Mundra Cutch
295. The Anglo Ayurvedic Dispensary,
Nagarchakla, Bhuj. "
296. Ayurvedic Dispensary, Baripada. Mayurbhanj
297. Atreya Ayurvedic Works. Comilla
298. Gita Mandir Laboratories, P.O. Batisa. Tripura
299. District Board Ayurvedic Dispensary,
Talaguppa Mysore
300. S A. Vaidyasala, 309, Visveswarapuram. Bangalore
301. Sri Ramakrishna Chikitsalaya Bhardwaj
Ayurvedic Pharmaceuticals, Basa-
vanguadi. " "
302. Sri Jayachamarajendra Institute of
Indian Medicine. "
303. The Cochin Ayurvedic Laboratories Ltd.,
Trichur. Cochin State
304. Government Vydyasala, Kondazhi, Vil-
land P.O. Triuseilwamata. "
305. Government Vydiasala, Chelakkara, "
306. Government Ayurveda Vaidiasala, Chen-
nanmangalam. "
307. Seth J.P. Bhartia Hospital, Fatehpur Jaipur State
308. Shree Navratna Ayurvedic Aushadha-
laya, Manak Chowk. Jodhpur
309. Shree Vyas Saropkari Aushadhalaya, Karwar-
Mundwa.
310. Mahila Ayurvedic Pharmacy, Ratan Nai
Masjid. Jamnagar
311. Mahila Pharmacy. " "
312. Jiwan Ayurvedic Pharmacy. Morvi
313. Dawakhana Pothi, P.O. Pothi. Via. Mundra. Rawalpindi
314. Okha Ayurvedic Aushadhalaya, Dwaraka
- PAKISTAN
315. Dacca Ayurvedic Pharmacy Ltd, Arme-
nian street. Dacca.

316	Unani Dispensary, Fakirhat, P C Rao-zan	Chittagong
317	Kanwar Ayurvedic and Pharmaceutical Co Ltd, Model Town	Lahore
318	Azim Unani Dawakhana, Flemming Road Near Mewa Mandi	"
319	Hakim Ali Mohd Naz, C/o Dr Tazal Ul Haq Sathan Street	"
320	Dawakhana Hamul Sihat, Chhatta. Bazaar	"
321	Dawakhana Saifi Temple Road	"
322	Hakim Fazal Illahi Mceload Road,	"
323	" Allah-Rakha Qureshi, Regd M P Fez Bagh, Mohalla Abad	"
324	Asiri Dawakhana (Regd)	"
325	Mashhur Alam Dawakhana, P O Amrit Dhara	"
326	Azad Hind Dawakhana, Krishna Gali No 2	"
327	The Bharat Ayurvedic Works Ltd, Outside Shahalmi Gate	"
328	Aditya Rasayan Pharmacy, Anarkali	"
329	Qureshi Unani Shafa Khana, inside Sheranwala Gate	"
330	Raz Medical Hall, 558, Saddar Bazar	"
331	Dawakhana Qureshi, Bazar Tezabian	"
332	Jai Pharmacy, Gondlanwali Road	Gujranwala
333	Muslim Unani Dawakhana, Pindi Bhatian	"
334	Chishtia Dawakhana, Emin Abad	"
335	Desai Dawakhana, Udhna Wali	"
336	Unani Naziri Dawakhana, Kotwali Bazar	"
337	Karimi Dawakhana, Gate Qila Meehiya Singh	"
338	Hakim Ram Singh, H O Kaman, Tehsil Okara	Montgomery
339	Shafa Khana Tibb i-Jadid, Okara	"
340	Dawakhana Tibb i Jadid, P O Renala, Vill Mari Din	"
341	" Tibb i-Jadid, Kaman, Tehsil Okara	"

342	Hakim Mohd Hussain, Chak No 34/142	Montgomery
343	Moulvi Ghulam Mohd's Dawakhana Chicha Watani Near Jamma Masjid	"
344	The Popular Medical Hall, P O Sakhi Sarwar	Dara Ghazi Khan
345	Shafa Khana Hamdarad, Jampur	"
346	Dawakhana Anware Unani, Jamali P O Jamali	Shahpur
347	Unani Shafa Khana, Near Jamma Mas- jid, Bahawal Nagar	Bahawalpur
348	Ahsani Dawakhana, Bazar Churigarah,	Sialkot City
349	Tehsil Tibbia Committee, Daska	"
350	Shafa Khana Qadri, Qasoa Bhopal Wala	"
351	Shafa Khana Nuri, Dhamonki, Tehsil Daska	"
352	Dawakhana Hakim Sheikh Sher Mohd Zafarwal	"
353	Hakim Atta-Ullah Pharmacy, Sohdra,	Wazirabad
354	Hakim Mohd Abdul Khalq	Murree
355	Qadimi Unani Dawakhana, Qaziyan Di Hatti Mandi Warburton	Qila Sheikh- pura
356	Shafa Khana Muhammad	"
357	Khalsa Hindustani Dawakhana	"
358	Azad Hind Pharmacy (Regd)	"
359	Sant Unani Dawakhana,	"
360	Dawakhana Hakim Atta-Ullah, Kot Pindi Dass	"
361	Unani Shafa Khana, Sangla Hill	"
362	Dawakhana Shafa	"
363	Betul Sihat	"
364	Dawakhana Shakri, Chak Khenwan, P. O Narang	"
365	Puri Indian Medical Hall	"
366	Shafa Khana Rehmania Babusaru P O Mac Leed	Ganj Road
367	Dawakhana Chashma Sihat, Railway Road	Gujrat
368	Betul Hikamat,	"
369	Dawakhana Rashidiya, Mohalla Gar Shah Doula Sahib	"
370	Hakim Abdul Haq Yassain Kalan	Campbellpur

371	Hindi Unani Dawakhana, Chowk Naya Mohalla	Rawalpindi
372	Johar Dawakhana, Hari Chand Street	Quetta
373	Indian Medicine Chemistry, Circular Road	"
374	Matbe Am o Khas Charitable, Dawakhana Outside, Dolat Gate	Multan
375	Ajmal Dawakhana, Mohalla Qadirabad	"
376	Hakim Mohd Saeed, Mandi Main Channu	"
377	Unani Islamiya Shafa Khana, Main Channu	"
378	Hakim Raja Bashir Ullah-Khan, P. O Hanuman Garh	"
379	Unani Dawakhana, Chowk Kachery Bazar, Khanewal Mandi	"
380	Dawakhana Maeenul Sahat, Inside Pak Darwaza	"
381	Darul Sihat Unani, Chak No 186 R.B P O Chak Jhumra	Lyallpur
382	Hakim Jaswant Rai Ahuja, Hari Charan Pura No 1.	"
383	Punjabi Unani Dawakhana, Mohalla Guru Nanak	"
384	Hakim M Farzand Ali	"
385	" Nur-Ud Din Pharmacy,	"
386	Unani Shafa Khana Dehlavi, Chamra Mandi	"
387	Dawakhana Issawi, P O Issakhail.	Mianwali
388	Hakim Ladha Ram, Ram Dhan	Chak Jhumra
389	Tibbia Committee, Alipur	Muzaffar Garh
390	Shafa Khana Hakim Id ul-Haq, P O Mahmud Kot Town	"
391	Tibbia Committee, Leriah	"
392	Watan Dawakhana, Shafa Building, Chowk Kalan	Okara
393	Shafa Khana Sayeedia	Sargodha
394	Unani Darul-Illaj, Block No 19,	"
395	Hakim Fez Ullah, Sadiq Nibang, Tehsil Shorkot	Jhang
396	Dawakhana Muslim Dessi, Kaim Bhawan	"
397	" Rafiqi Am, Chand Pol Bazaar	Seti

398	Hakim Bam Lal	Chiniot
399.	„ Ram Sahayee Mall Kapoor	„
400	„ Mani Ram	„
401	„ Pandit Devi Dayal	„
402	„ Ram Sahai, Hakim	„
403	„ Lekh Raj, Rail Bazar	„
404	„ Gobind Ram, Malhotra, Rail Bazar	„
405	„ Jiwan Dass Bahr	„
406	„ Charanjit Lal	„
407	„ Wasanda Ram	„
408	„ Harbhagwan Das	„
409	Pawar Jen Pharmacy, Saddar Bazar	Rawalpindi
410	Angurin Pharmacy, c/o Tara Chand Mul Chand Preddy Street	Karachi
411	Vashishath Ayurved Aushadhalaya	

LIST OF PHARMACIES OF INDIGENOUS MEDICINE WHICH
ANSWERED QUESTIONNAIRE NO IV (S C)

List (b)

1	Krishan Gopal Ayurvedic Dharmartha Aushadhalaya P O Kalora Bogia	Nasirabad
2	The Ayurveda Rasashala Poona Ltd	Poona
3	Ayurved Dispensary, 637, Shukrawar Peth	Poona
4	Dattaraya Krishan Sandu Brothers, Chambur	Bombay
5	The Zandu Pharmaceutical Works Ltd	„
6	Shree Yagneshwar Panvel Ltd Ayur vedic Pharmacutists Panvel	Colaba
7	Shri Dhootapapeshwar Panvel Ltd, Panvel.	„
8	Ahsok Chemical and Pharmaceutical Works Jalgaone	East Kandesh
9	The Secretary, Ayurved Seva Sangh Aushadhi Bhavan	Nasik
10	Shri Krishna Aushadhalaya	Ratnagiri
11	Ayurvedashram Pharmacy Ltd	Ahmednagar
12	The Punjab Ayurveda Pharmacy	Amritsar

13	Shri Rama Mohana Ayurvedic College	Guntur
14	The Managing Director, Andhra Ayurvedic Pharmacy Ltd	Bezwada
15	Jeevananda Pharmacy	Tellicherry
16	Thripura Sundari Aushadhalayam	Ellore
17	Dr Mir Tufil Ahmad Medical Officer Corporation of Madras	Madras
18	Attreya Ayurvedic works Tennore Road	Trichinopoly
19	Tibbia College Muslim University	Aligarh
20	Dawakhana Maden ul Advia Victoria Street	Lucknow
21	Superintendent Ayurvedic Pharmacy Benares Hindu University	Benares
22	The Banga Luxmi Ayurvedic Works II Clive Row	Calcutta
23	Sakti Aushadhalaya Dacca Ltd	
24	Jamini Bhusan Ashtanga Ayurvedic Pharmacy College and Hospital	
25	Nihila Karnataka Central Ayurvedic Pharmacy Ltd	Mysore
26	The Cochin Ayurvedic Laboratories Ltd	Trichur
27	Office of the Director of Indian Medicine Government of Cochin State	
28	Navaratna Pharmaceutical Laboratories Mattancheri	Cochin
29	The Gondal Rasashala Aushadashram	Gondal
30	Mayumdar Ayurvedic Pharmaceutical Works	New Delhi
31	Gowri Shankar Chemical and Pharmaceutical Works	Bangalore
32	Senior Physician Unani Section Sri Jayachamarajendra Institute of Indian Medicine	

APPENDIX B (1)

THE CONCLUSIONS ARRIVED AT IN THE POONA
CONFERENCE 1947.

पंचमहाभूतों के संवधमें आयुर्वेद के विचार

आयुर्वेदसे मनुष्यशरीर और समग्र चराचर सृष्टि का विचार करते हूँ पंचमहाभूत और आत्मा इन छः तत्त्वों का विचार किया गया है। वर्तमान समयके चिकित्साशास्त्र पर जैसे पदार्थविज्ञान (Physics & Chemistry), जीवविद्या (Biology) आदि आधुनिक विज्ञानों का प्रभाव पड़ा है, उसी प्रकार प्राचीन भारतीय आयुर्वेद पर भी उस समय के दार्शनिक विचारों का और सिद्धान्तों का प्रभाव पड़ा है। परन्तु आयुर्वेद में उस समयके समग्र दार्शनिक विचारों को अविकल न लेकर अपने चिकित्साशास्त्र की आवश्यकतानुसार उनमें यथायोग्य परिवर्तन करके और उनको अपने ढोंचेमें बैठकर लिया है। अतः आयुर्वेद तथा दार्शनिकोंके विचार कहीं कहीं एक और कहीं कहीं भिन्न पाये जाते हैं।

आयुर्वेद में पंचमहाभूत विचार का प्रयोजना

आयुर्वेदमें सृष्टि की उत्पत्ति—विशेषतः मनुष्यशरीर की उत्पत्ति, निर्माण जीवत् शरीर के व्यापार (Physiology), जीवत् शरीरमें होनेवाली विवृत्तियाँ (व्याधि) और व्याधिप्रकार तथा जीवन रक्षाके उपयोगमें आनेवाले आहार और औषध द्रव्योंका विचार-पंचमहाभूतसिद्धान्तसे लक्ष्यमें रखकर ही किया है। आयुर्वेदसे यद्यपि शरीरको “द्रोण-धातुमलमूल” माना है, तथापि उनकी भी उत्पत्ति और स्थिति का कारण पंचमहाभूतोंको ही माना है, एवं द्रव्यगुणप्रतिपाद्य रसवीर्यविपाककी उत्पत्ति भी पंचमहाभूतोंके द्वारा ही लगायी गयी है।

महाभूत सख्या

महाभूत पाँच हैं।

पंचमहाभूतों के असाधारण (प्रधान स्वकीय) गुण—

आकाश का गुण शब्द है।

वायुका गुण स्पर्श है।

तेजका गुण रूप है।

जलका गुण रस है।

पृथ्वीका गुण गन्ध है।

पंचमहाभूतों के भूतान्तरानुप्रवेशकृत गुण

आकाशका गुण शब्द एक है।

वायुमें पूर्वभूतान्तरानुप्रवेशकृत गुण शब्द और स्वीय गुण स्पर्श मिलकर दो गुण रहते हैं। तेजमें पूर्वभूतान्तरानुप्रवेशकृत गुण शब्द और स्पर्श दो और स्वीय गुण रूप मिलकर शब्द, स्पर्श और रूप ये तीन गुण होते हैं।

जलमें पूर्वभूतान्तरानुप्रवेशकृत शब्द, स्पर्श और रूप तथा-स्वकीय गुण रस मिलकर शब्द, स्पर्श, रूप और रस ये चार गुण होते हैं।

भूमिमें पूर्वभूतान्तरानुप्रवेशकृत शब्द, स्पर्श, रूप और रस तथा स्वकीय गुण गन्ध मिलकर शब्द, स्पर्श, रूप, रस और गन्ध ये पाँच गुण होते हैं।

महाभूतोंके आयुर्वेदाभिमत स्पर्शनेन्द्रिय गोचर लिङ्ग—

भूमिका लिङ्ग स्पर्श (काठिन्य) है।

जलका लिङ्ग द्रव्य है।

वायुका लिङ्ग चलत्व है।

तेजका लिङ्ग उष्णत्व है।

आकाशका लिङ्ग अप्रतिघात (अस्पर्शत्व, अरोधकत्व) है।

पांचभौतिक इंद्रियोंके आरम्भक प्रधान महाभूत

आकाश श्रोत्रेन्द्रियारंभक (श्रोत्रेन्द्रिय द्रव्य) है।

वायु स्पर्शनेन्द्रियारंभक (स्पर्शनेन्द्रियद्रव्य) है।

तेज दर्शनेन्द्रियारंभक (दर्शनेन्द्रिय द्रव्य) है।

जल रसनेन्द्रियारंभक (रसनेन्द्रिय द्रव्य) है।

पृथ्वी घ्राणेन्द्रियारंभक (घ्राणेन्द्रिय द्रव्य) है।

महाभूतोंका सत्त्वादिगुणबहुलत्व

आकाश सच्चगुणबहुल है।

वायु रजोगुणबहुल है।

तेज सत्त्वरजोगुणबहुल है।

जल सत्त्वतमोगुणबहुल है।

पृथ्वी तमोगुणबहुल है।

पांचभौतिक दोषोंके आरंभक प्रधान महाभूत

आकाश और वायु ये दो वातारंभक हैं।

तेज और जल ये दोनों पित्तरंभक हैं।

जल और पृथ्वी ये दो क्लेशारंभक हैं।

सांख्यमतसे महाभूतोंका पंचतन्मात्रोद्भूतत्व

शब्दतन्मात्रसे शब्दगुणवाला आकाश उत्पन्न होता है।

शब्दतन्मात्रसहित स्पर्शतन्मात्रसे शब्दस्पर्शगुणवाला वायु उत्पन्न होता है।

शब्दस्पर्शतन्मात्रसहित रूपतन्मात्रसे शब्दस्पर्शरूपगुणवाला तेज उत्पन्न होता है।

शब्दस्पर्शरूपतन्मात्रसहित रसतन्मात्रसे शब्दस्पर्शरूपरसगुणवाला जल उत्पन्न होता है।

शब्दस्पर्शरूपरसतन्मात्रसहित गन्धतन्मात्रसे शब्दस्पर्शरूपरसगन्धगुणवाली पृथ्वी उत्पन्न होती है।

सृष्टिसंहारक्रम

प्रलयकालमें परमात्माकी सृष्टिसंहार करनेकी इच्छासे प्रथम पांचभौतिक द्रव्योंका लय होता है। तदनन्तर जलादि अन्यमहाभूतों के रहते हुए पृथ्वीका आपरमाणु विभजन होता है।

तदनन्तर तेज, वायु और आकाश के रहते हुए जलका आपरमाणु विभजन होता है। तदनन्तर वायु और आकाश के रहते हुए तेजका आपरमाणु विभजन होता है। तदनन्तर आकाशके रहते हुए वायुका आपरमाणु विभजन होता है। आकाश सदैव महस्पर्शगुणवाला और विभु होनेसे उसका विभजन नहीं होता। आकाशसमेत अन्य भूतोंके परमाणु प्रलयकालपर्यन्त निष्क्रियवस्थामें पड़े रहते हैं। प्रलयकालके अनन्तर

परमात्माकी सृष्टिके उत्पन्न करने की इच्छा होने पर प्रथम आकाशकी उत्पत्ति (अभिव्यक्ति) होती है। पीछे वायुमें कर्म उत्पन्न होनेपर द्वयगुण त्र्यसरेणुकादि क्रमसे स्थूल आकाशानुप्रवेश द्वारा वायुपरमाणुओंका संयोग होकर महावायुकी उत्पत्ति होती है। पाछे तेजके परमाणुओंने कर्म उत्पन्न होनेपर द्वयगुण त्र्यसरेणुकादिक्रमसे आकाश और वायु इन दो महाभूतों के अनुप्रवेशद्वारा तेजपरमाणुओंका संयोग होकर महातेज की उत्पत्ति होती है। तदनन्तर जलके परमाणुओंमें कर्म उत्पन्न होनेपर द्वयगुण त्र्यसरेणुकादि क्रमसे आकाश, वायु और तेज इन तीन महाभूतोंके अनुप्रवेशद्वारा संयोग होकर महाजलकी उत्पत्ति होती है। तदनन्तर पृथ्वीके परमाणुओंमें कर्म उत्पन्न होनेपर द्वयगुण त्र्यसरेणुकादि क्रमसे आकाश, वायु, तेज और जल इन चार महाभूतोंके अनुप्रवेशद्वारा पृथ्वीपरमाणुओंका संयोग होकर महापृथ्वीकी उत्पत्ति होती है।

महाभूतोंकी परम सूक्ष्मावस्था जिसको वैशेषिक परिभाषामें परमाणु और सार्वत्र्य परिभाषामें पंचतन्मात्रा कहा जाता है उस अवस्थामें पृथ्वीमें गन्ध, जलमें रस, तेजमें रूप, वायुमें स्पर्श और आकाशमें शब्द यह एक एक गुण रहता है। उनमें इन गुणों न रहना प्रत्यक्ष गोचर नहीं किन्तु अनुमेय है।

सर्वारम्भमें उत्पन्न (अभिव्यक्त) आकाशमें केवल शब्द गुण होता है, महावायुमें अपने गुण स्पर्श और पूर्वभूतानुप्रवेशकृत शब्दगुणको लेकर शब्द और स्पर्श दो गुण होते हैं। तेजमें अपना गुण रूप और पूर्वभूतानुप्रवेशकृत शब्द, स्पर्श मिलकर तीन गुण होते हैं, जलमें अपना गुण रस और पूर्वभूतानुप्रवेशकृत शब्द, स्पर्श, रूप मिलकर चार गुण होते हैं, पृथ्वीमें अपना गुण गन्ध और पूर्वभूतानुप्रवेशकृत शब्द, स्पर्श, रूप और रस मिलकर पांच गुण होते हैं।

पूर्वोक्त प्रकारसे महाभूतों (स्थूलभूतों) की उत्पत्ति के अनन्तर पाँचों महाभूतोंक समवायसे औषधि, सुवर्ण, शैल्यादि खनिज द्रव्य और मनुष्यादि प्राणिसृष्टिकी उत्पत्ति होती है। यह स्थूल सृष्टि पाचभौतिक होनेसे प्रत्येक द्रव्यमें पाँचों महाभूतोंके गुण पाये जाते हैं।

पाश्चात्यविज्ञान समस्त सुवर्णादि ९२ एलिमेंटोंमें भारतीय दार्शनिकों और वैद्योंके मतानुसार पाँचों महाभूतोंके असाधारण लक्षण (वाटिग्य) (स्वत्व), द्रवत्व, चैतन्यत्व, उष्णत्व और अवकाश) पाये जाते हैं। इसलिये ये पंचभौतिक द्रव्य माने जा सकते हैं, एक द्रव्य नहीं।

पाचभौतिक द्रव्योंकी उत्पत्ति

पृथ्वी कार्यद्रव्योंकी उत्पत्तिमें अधिष्ठान (आश्रय, आधार, सुरक्षित उपादान) है, जल योनिरूप अर्थात् पृथ्वीके अणुओंको मिलनेवाला (समिश्रण करनेवाला) है, तथा आकाश वायु और तेज के समवाय (समिश्रण) से उनके स्वरूपोत्पत्ति तथा एक दूसरेमें भिन्नता होती है। अर्थात् सब कार्य द्रव्योंका उत्पत्तिमें पृथ्वी आधाररूपसे, जल उनके अवयवोंकी मिलनेवालोंके रूपसे, तेज उनमें पाक और रूप उत्पन्न करके, वायु गति उत्पन्न करके तथा आकाश उनके अणुओंके बीचमें अवकाशदानसे उनके स्वरूप बनानेमें और एक दूसरोंसे भिन्न होनेमें कारणरूप होते हैं।

दोषों का सामान्य स्वरूप

जावच्छरीरमें सर्वदेहव्यापि पांचभौतिक द्रव्यरूप दोष हैं, जो शरीर की रचना, स्थिति, विवृति और विनाशमें प्रधान कारण होते हैं।

दोषों की संख्या

दोष तीन हैं। उनके नाम घात, पित्त और श्लेष्मा (कफ) हैं। प्रमश "वा" "तप्" और "क्षिप" इन तीन धातुओंसे ये शब्द बने हैं और उनसे सूचित होता है कि घात गतिकारक, पित्त तापकारक और श्लेष्मा संश्लेषकारक (संयोजन कर्ता) है।

दोषों के प्रधान गुण

घातका प्रधान गुण चलत्व, पित्तका प्रधान गुण उष्णत्व और श्लेष्माका प्रधान गुण स्नेह अथवा स्निग्धत्व है।

वातादि दोषोंके आयुर्वेदीय ग्रन्थोंमें अनेक गुण लिखे हैं, जैसे वायुके चलत्व, स्पर्श आदि, पित्तके तीक्ष्णत्व, विस्त्रय आदि श्लेष्मा के श्लक्ष्णत्व, मन्दत्व आदि। परंतु उपर्युक्त तीन गुण सर्वप्रधान हैं।

दोषोंका प्रधान प्राकृत कर्म

वायु का प्रधान प्राकृत कर्म चलन (शारीरिक सर्व क्रियाओंका प्रवर्तन), पित्तका पाचन और श्लेष्माका संश्लेषण (संयोजन) है।

वातादि दोषोंके और भी अनेक कर्म हैं, जिनकी अभिव्यक्ति शारीरिक द्रव्यों और अङ्गोपाङ्गोंमें विभिन्न प्रकारसे होती है।

दोषोंके प्रधान विवृत कर्म

वायुका प्रधान विवृत कर्म शूल, पित्तका दाह और श्लेष्माका गौरव है।

विवृत दोषों के कार्य अथवा भी बहुतसे हैं, जो भिन्नस्थानीय विकारोंमें प्रतीत होते हैं।

दोषोंके प्रधान भेद

१ प्राण, २ उदान, ३ व्यान, ४ समान, ५ अशान - ये पंच वायुके प्रधान भेद हैं। १ पाचक, २ रजक, ३ साधक, ४ आलोचक और ५ भ्राजक—ये पांच पित्त के प्रधान भेद हैं। १ अवलम्बक, २ वलेदक, ३ बोधक, ४ तर्पक और ५ श्लेषक—ये पांच श्लेष्मा के प्रधान भेद हैं।

दोषोंका विशिष्ट स्थान (आशय आदि)

पचवाशय आदि वायुक, नाभि, आमाशय आदि पित्तके, उरस, कण्ठ आदि कफके प्रधान स्थान हैं।

दोषज प्रकृतियां

आयुर्वेदमें आयुष्य और आरोग्य का विचार करते समय तथा चिकित्सा विचारमें दोषज प्रकृतियों का विचार किया जाता है।

दोषोंका विशिष्ट दूष्य

वायुका विशिष्ट दूष्य अस्थि, पित्तका रक्त और स्वेद, तथा अन्य अवशिष्ट धातु—रस, मास, मेद, मज्जा, शुक्र ये पांच धातु और शक्त्व तथा मूत्र ये श्लेष्माके विशेष दूष्य हैं।

दोषोंकी गतियाँ

क्षय, वृद्धि और स्थान (समता - स्वाभाविकता प्राकृतावस्था)—ये तीन दोषों की गतियाँ अर्थात् अवस्थाएँ हैं। क्षीण और वृद्ध दोष विवृतिके कारण होते हैं और इनकी

समता स्वास्थ्यका कारण है। रोगनिदान करते समय आयुर्वेदमें सचय, प्रकोप, प्रसर और स्थान सधय इनका विचार आवश्यक होता है। भिन्न भिन्न रोग और उनकी अवस्थाएँ, दोषोंकी सचयादि अवस्थाओंसे स्पष्ट की जाती है। चिकित्सा विशेषोंका विचार भी सचयादि अवस्थाओंमें किया जाता है, जिसका प्रयोजन यह है कि रोग उत्पन्न ही न हो, अथवा उत्पन्न हो तो अधिक वृद्धिको न प्राप्त हो।

१ श्री हिल्लकर शास्त्रीजीका मन्तव्य है कि श्लेष्माका प्रधान कर्म “शोक” है। इसका आधार यह है—“घृल नतंसनिछाद् दाह पित्तात्, शोक कफोदयात्।” (अ ह सू २९/६)।

रस वीर्य विपाक-प्रभाव विज्ञान

रस—व्याख्या—प्रत्येक द्रव्यमें उस द्रव्यके सूक्ष्म अंशमें अवस्थित रसनाग्राह्य गुण—रस

रसके मुख्य भेद ६ हैं। अनुरस, समिधरस आदि भेदोंसे रसोंकी सरवा अधिक होती है। कि तु रसनेन्द्रियमें “स्पष्टरूपेण अभिव्यक्त” होनेवाले रस पट्सरव्या कही होते हैं—मधुर, अम्ल, लवण, तिक्त, कटु, कषाय।

रसोंके गुण और कार्य.—सुश्रुत सूत्रस्थान अ ४२/९ में लिखित है।

विपाक व्याख्या —उपयुक्त द्रव्योंमें पचनेन्द्रिय संस्थानमें पचक द्रव्योंके मिश्रणसे पाकक्रिया पूर्ण होने के अनन्तर जो रसांतर उत्पन्न होता है उसका नाम विपाक है। कर्मनिष्ठासे उसका अनुभव होता है।

विपाक के प्रकार:—विपाक के मुख्य प्रकार दो हैं—(१) मधुर और (२) कटु कड़ प्रन्थकारोंके अभिप्रायसे विपाक तीन हैं,—(१) मधुर, (२) अम्ल, (३) कटु मधुर और लवण का विपाक मधुर, तिक्त कषाय-कटु ओंका कटु और अम्ल का अम्ल।

रसोंसे पंचमहाभूतोंका सन्ध

पृथ्वी और जलके आधिक्यसे मधुर, पृथ्वी और तेजके आधिक्यसे अम्ल, जल और तेजके आधिक्यसे लवण, वायु और अग्नि के आधिक्यसे कटु, वायु और आकाश के आधिक्य से तिक्त, पृथ्वी और वायुके आधिक्यसे कषाय।

पडसोंके दो भेद अथवा वर्ग —एक सौम्य और दूसरा आग्नेय। मधुर, तिक्त और कषाय तीन रस सौम्य और कटु अम्ल तथा लवण आग्नेय।

वीर्यका स्वरूप —मधुरादि रसाश्रित द्रव्योंमें जो प्रधान कार्यकारी गुण होते हैं उनका नाम वीर्य है। मुख्यतः उष्ण और शीत दो प्रकारका वीर्य माना गया है। शीत वीर्यके (१) गुह, (२) स्निग्ध और (३) मृदु ऐसे तीन भेद तथा लघु, रुक्ष और तीक्ष्ण ऐसे उष्णके तीन भेद मिलकर वीर्य आठ प्रकारका बतलाया है। पाचभौतिक प्रमाणभेदसे उत्पन्न असंख्य द्रव्योंमें वीर्य के अर्थात् क्रियाकारी गुणके अनेक भेद होते हैं और उनके अनेक कार्य होते हैं। अतः गुणभेद और कार्यभेद के अनुसार वीर्यके भी असंख्य भेद हो सकते हैं।

प्रभाव का स्वरूप —द्रव्यान्तर्गत जो विशिष्ट गुण शरीरके भिन्न भिन्न स्थानोंमें विशिष्ट प्रकारके कार्य करता है उसका नाम प्रभाव है। प्रभाव की सख्या नियत नहीं होती। पंचमहाभूतों के विचित्र संयोगसे द्रव्योंमें जो विशिष्ट गुण होते हैं और रस विपाक वीर्य के ज्ञानसे जिसका अनुमान नहीं किया जा सकता ऐसा द्रव्यान्तर्गत गुण प्रभाव है।

रस, वीर्य, विपाक और प्रभाव के ज्ञानसे प्रत्येक द्रव्यका पचनके अवस्थामें होनेवाला कार्य, प्रत्येक द्रव्यका सर्व शरीरमें होनेवाला सामान्य कार्य और प्रत्येक द्रव्यका शरीरके विभिन्न स्थानोंमें होनेवाला विशिष्ट कार्य—इनका ज्ञान होता अवश्य होता है। इन कार्योंका स्पष्टीकरण आयुर्वेदमें रस-वीर्य-विपाक-प्रभाव-विज्ञान द्वारा किया गया है।

‘ किंचिद्रसेन कुरुते कर्म पायेन चापरम् ।

गुणान्तरेण वीर्येण प्रभावेणैव किंचन ॥’

यह सिद्धान्त इस अभिप्रायका है:—

पचनपूर्व होनेवाला कार्य मुख, कण्ठ और आमाशयमें होता है, विपाक का कार्य पचनक्रियाके अवयवोंमें होता है, वीर्यका कार्य सर्व शरीरमें होता है और प्रभाव का कार्य विशिष्ट स्थानोंमें होता है।

औषधि द्रव्योंका उपयोग प्रायः मुखमेंसे किया जाता है इस अभिप्रायसे ही रस और विपाक के कार्यका यह स्पष्टीकरण है। किन्तु लेप, अभ्यंग आदि रूपमें भी औषधिद्रव्योंका उपयोग किया जाता है। वहाँ भी रसका कार्य होता है। “रसो निपाते द्रव्याणाम् ।” इस वाक्य का अभिप्राय मुखमेंसे उपयोग किये जानेवाले द्रव्योंका रस रसनेन्द्रिय के संयोग से और लेप अभ्यंगादि द्वारा उपयोग किये जानेवाले द्रव्योंका स्पर्शसंयोग होते ही, रसका कार्य होता है।

अभ्यंग लेप आदि रस प्रकारके द्रव्योंके संबंधमें विपाक और विपाकावस्थामें होनेवाला कार्य नहीं होता।

गवर्नमेंट ऑफ इंडियाकी सायंटिफिक मेमोराण्डा सबकमिटी ऑफ इंडीजिनस सिस्टिम्स ऑफ मेडिसिनद्वारा बुलाई हुई परिषद्में आप हुप टाक्टर व वैज्ञानिक विद्वानोंका पंचमहाभूतोंके संबंधमें निम्नानुसार सर्वसम्मतिसे मत स्वीकृत हो गया है।

सभी प्रकार के अणु (atoms), तत्त्व (elements) और संसारके अन्यान्य द्रव्य पांचभौतिक होते हैं। किसी विशेष भूतका प्रकर्ष होनेके कारण ही पार्थिव, आग्नेय इत्यादि नामके भिन्न भिन्न द्रव्यप्रकार होते हैं।

उदाहरण के लिये हम किसी भी एक परमाणुका विचार उपस्थित करते हैं। उसमेंके प्रोटानके कण पृथ्वीतत्त्वके बोधक है; उसका भार प्रोटानकणके कारण ही होता है। किसी भी परमाणुके प्रोटान और न्यूट्रान आदि कणोंको एकत्र रखनेवाले परस्पर-आकर्षणके बल तथा प्रोटान और इलेक्ट्रॉन्सके बीचके परस्पर आकर्षण के बल तथा इलेक्ट्रॉन्स की अपनी अपनी परिधिमें गतिमान रखनेवाले बलके आधारको ‘आण्विक’ भूतका श्रेष्ठतम बोधक समझ सकते हैं। प्रोटान और इलेक्ट्रॉनमें पाए जानेवाले धन और ऋण विद्युत् के कणों (electrical charges) को ‘तेजस्’ भूतका श्रेष्ठतम माना जा सकता है। इलेक्ट्रॉन्स की गति वायुभूतके कारण होती है और परमाणुके भीतरका विशाल अंतराकाश (enormous continuous space) ‘आकाश’भूतका बोधक माना जा सकता है।

A Short note on रस, गुण, वीर्य, विपाक & प्रभाव.

(1) It is the simplest explanation of pharmacological and therapeutical actions of द्रव्य (Diet, Drugs)

(2) रस—the word is rather difficult to translate by the word taste.

(a) रसनाग्राह्योऽर्थो रस ।

(b) रसो निपाते द्व्यणाम् ।

(a) means taste, whereas (b) means immediate and direct effect on tongue or even on skin e g कषाय & कटु.

There are six Rasas only मधुर, लवण, अम्ल, तिक्त, कषाय, कटु

Modern Physiologists accept only 'four' Rasa, Guna, Veerya, Vipaka & Prabhava are the simplest method to study the action of diet and drugs

(3) गुण s are physicochemical properties and their pharmacological action on the body

(4) वीर्यं—whether of two types or eight types means (वीर्यं तु त्रियते येन या क्रिया)

(5) विपाक—अवस्थापक—digestion in the alimentary canal
निष्ठापक Inter action between the drugs absorbed and the tissues

(मधुर	Carbohydrates
रसविपाक (अम्ल	Proteins
(कटु	Fats

गुणविपाक (गुरु	Proteins
(लघु	Fats & Carbohydrates

(6) प्रभवं Specific action

असात्म्य Idiosyncrasy to drugs

Hyper sensitiveness or allergy to food

तद्द्रव्यमात्मना किञ्चित्, किञ्चिद्वीर्येण सेवितम् ।

किञ्चिद् रसविपाकाभ्या दोषं हन्ति करोति वा ॥

(सु सू अ. ४०. .१४)

An Outline of the Memorandum on the

TRIDOSHA THEORY

(1) दोषाणामुत्पत्तिरिति is the foundation of the whole Ayurveda Its embryological, anatomical physiological, pathological and therapeutical conceptions rest upon this foundation e g see वातपित्तश्लेष्माण एव देहसम्भवतव । तैरेवाव्यापन्नरं धोमध्योर्ध्वसनिविष्टौ शरीरमिदं धार्यतेऽनात्मिष स्थूणाभिलिख्यभिः, अतश्च त्रिरथूणमाहुरेके । त एव च व्यापन्ना प्रलय-हेतवः ॥ (सु सू २१ ३)

दोषा पुनश्च वातपित्तश्लेष्माण । ते प्रवृत्तिभूता शरीरोपकारका भवन्ति । विकृति मापन्नास्तु खलु नानाविधैविकारैः शरीरमुपतापयति । (च वि १—५)

क्षयं वृद्धिं समत्वं च तदैवावरण भिषक् ।

विज्ञाय पवनादीना न प्रमुह्यति कर्मसु ॥ (च. चि. २८—२४८)

रसदोष सञ्जिघाते तु ये रसायेदोः समानगुणा समानगुणभूयिष्ठा या भवति ते तानमिपर्ययति विपरीत गुणा विपरीतगुणभूयिष्ठा य क्षमय स्वम्यस्यमाना इति । अतद्व्यवस्था हेतो पटस्वमुपदिश्यते रसानां परस्परैणासंसृष्टानां त्रिविधं य दोषाणाम् ।
(च वि १—७)

इत्युक्त कारण कार्यं धातुसाम्यमिहोच्यते ।

धातुसाम्याक्रिया चोक्ता तत्रस्यास्य प्रयोजनम् ॥ (न सू १—५३)

(2) The Tridosha Theory (सिद्धांत) is very wide in its application It is applicable to every living entity from microbes to men The Ayurvedic Scholars have applied it to elephants horses cows and plants In other words this theory has been applied to and it explains every aspect of the phenomenon of life

(3) They—Tridoshas—are present in every cell as well as moving through every channel of the body (सर्वशरीरचरा) Thereby they perform bodily and mental functions of every individual Thus this theory explains an indissoluble connection between the Doshas and the mental functions as well

वातपित्तश्लेष्मणा पुन सर्वशरीरचराणां सर्वाणि स्रोतांसि अयनभूतानि ॥
(च वि ५—५)

उत्साहोच्छ्वासनि श्वासचेष्टा धातुगतिः समा ।
समो मोक्षो गतिमता वायो कर्माधिकारजम् ॥
दर्शनं पक्तिरूपमा च श्रुतृणां देहमार्दवम् ।
प्रभा प्रसादो मेधा च पित्तकर्माधिकारजम् ॥
स्नेहो य घ स्थिरत्वच गौरव वृषता बलम् ।
क्षमा धृतिरलोभश्च कफकर्माधिकारजम् ॥

(च सू १९—४९/५१)

(4) To achieve this end the Doshas act through several specialised apparatuses which are more and more integrated anatomically when we come up the ladder of life The study of structure and function—the study of comparative anatomy and physiology—reveals this fact As the human body is the object of our study we say that they act in it through several anatomical systems

(5) The functions of these Doshas in health and disease reveal themselves in an admirable way when they are collected from the extant Ayurvedic literature and classified in terms of modern science

(6) When such a collection is made we find that at least 141 normal functions and 832 abnormal symptoms of Vayu can be attributed to the Vayu acting through the Nervous System Hence we call it वातस्थान (Vayu Apparatus)

(7) All the physiological aspects of the human body can be divided under these four sections:—

(a) Neuromuscular physiology.

(b) Physiology of respiration, circulation, digestion and secretion.

(c) Metabolism; functions of ductless glands and reproduction.

(d) Physiology of nervous system and special senses.

This is the syllabus of the Toronto University (U.S.) of which Doctors C. H. Best and N. B. Taylor are the professors and are recognised as eminent physiologists of the world.

(8) A consideration of this syllabus in terms of—Tridosha Theory reveals that it is nothing but physiology of वात, पित्त & कफ in all their physiological functions.

(9) This theory of Tridosha can be adequately explained when it is studied in the light of modern science. And we believe that it would stand the scrutiny of modern science.

(10) Now we come to the consideration of वात, पित्त & कफ separately. It must be admitted at the very outset that they perform their controlling function not only over Dhatus and Malas in Ayurvedic language but on the systems, organs, tissues and finally on the cells in terms of modern physiology. Of these, again Vayu is the controlling agent of the other two. See पित्त वगु" etc. We have already mentioned that Vayu acts through the Nervous System (central, peripheral & autonomic) on the evidence of its normal and abnormal functions. The five Vayus of Ayurveda are chiefly responsible for the following functions besides others

(1) Prana Vayu is responsible for —

(a) Mental functions. (नियंता प्रणेता च मनसः)

(b) Functions of the special senses (सर्वेन्द्रियाणामुद्योजकः)

(c) Functions of heart, lungs, deglutition.

(सोऽङ्गं प्रवेशयन्तः प्राणाश्चाप्यवलंबते)

(2) Udan Vayu is responsible for speech. (प्रवर्तको वाचः)

(3) Saman Vayu is responsible for digestion of food.

(समातण्डले.)

(4) Apan Vayu is responsible for excretion of urine, menstrual blood, faeces and foetus.

(क्षेप्ता वह्निर्मलानां शुक्रार्तवशक्नुमृत्रगर्भनिष्क्रमणक्रियः) अ. ह.

सु. १२. ४.

- (5) Vyana Vayu is responsible for (a) circulatory functions
 रससंवहनोद्यतः also स (रसः) ध्यानेन विक्षिप्तः सर्वान् धानान् प्रतर्पयेत् ॥
 (b) Locomotion (प्रवर्तश्चेष्टनामुच्चावचानाम्)
 (c) Sensation श्रोत्रस्पर्शनयोर्मूले बहिरन्तः स्पर्शहेतुर्वायुरेव स्वभाश्रितः)

Now we take up Pitta which in general term performs all the chemical changes in the body as enzymes, hormones and digestive secretions and is responsible for producing heat and energy

- (1) Pachaka Pitta represents the digestive secretions of the digestive tract, enzymes of the tissues and for that matter every cell.
- (2) Ranjaka Pitta represents the Hematopoietic principle in the liver
- (3) Alochaka Pitta represents the Rhodopsin or visual purple of the retina.
- (4) Sadhaka Pitta represents the different hormones.
- (5) Bhrajaka Pitta represents the substances in the skin regulations, the surface temperature, absorption of oils and ointments and complexion.

Now we take up Kapha (श्लेष्मा) whose general functions are cohesion and body water (रूपेण and उद्भक्ते)

- (1) Avalambaka (अवलम्बक) Kapha as we infer may be the pleural and pericardial fluid and mucus secretion of the respiratory tract.
- (2) Kledaka (क्लेदक) Kapha may represent the mucus secretion of the digestive tract, which lubricates it and helps to breakdown the particles of food for easy digestion.
- (3) Bodhak (बोधक) Kapha may represent the mucus secretion of the mouth and keeps the tongue moist for appreciation of taste
- (4) Shleshaka (श्लेष्मक) Kapha may represent the synovial fluids.
- (5) Tarpaka (तर्पक) Kapha which may represent the cerebrospinal fluid.

We say in general that what has been mentioned above should be taken as an outline but there are many substances in the body which are not mentioned specially in the above divisions of Tridoshas. However, they can be included in Vata, Pitta and Kapha according to their nature and functions

APPENDIX B-I (2)

SCIENTIFIC MEMORANDUM COMPILED BY
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Section I

The Panchamahabhuta Theory.

We confess that we are getting into deep waters, when we discuss this theory, because it is difficult to grasp correctly the meaning of their terminology and there are several theories to explain the constitution of matter. Every prominent school of Indian Philosophy has dealt with it and the Ayurvedic 'Seers' were also influenced by it and they influenced others also in their quest of Truth-Reality. The modern medical science stands on a tripod of physics, chemistry and biology. The Ayurvedic 'Seers' of the hoary past similarly took from other branches of knowledge which were devoted to the study of the world of experience which surrounds us. Thus one finds, in the works of Charaka, Sushruta, Kashyapa and Bhela—all of which were written before the beginning of the Christian era—discussion on biology, theory of matter, cosmogony, psychology, philosophy and so on. Later works have been silent on these topics and have paid more attention to the topics of medicine.

A modern medical man will naturally ask why this sort of discussion in a text-book of medicine! Our reply is that the metaphysical and philosophical discussions are there because the Ayurvedists believe that the aim of Ayurveda (Science of Life) is to cure a person not only of his mental and bodily ailments but also to relieve him of his bondage of matter and to show him the path of true salvation—Moksha. If dyspepsia and dementia are physical and mental disorders, the cycle of birth and death is most certainly a spiritual disorder. If the works of the Seers are studied from this view it will be easy to grasp and admire their ideology. The human personality is made up of soul, mind and body (matter) and therefore, a medical man ought to be acquainted with all the three. This they preached and preached more than once. Matter thus came up for repeated study and its Panchabhautic constitution merited their deep consideration.

The study of the various branches of science in the present century have produced scientific philosophers like Whitehead who

are also blending science and philosophy. We shall refer to this later on.

Charaka has said whatever substances you find in the universe or cosmos, you find in the body. This means that there is no difference in quality between the Macrocosm and the Microcosm except one of degree only. To understand the body properly, therefore, one should study the physical constitution of the universe (Charaka Sharira). We do not know how much has been given to and taken from the *Sankhyas*, *Vaiseshikas*, the *Naiyayikas* and the *Vedantists* by the *Seers* of Ayurveda. But, we do know that there exists a firm philosophical background to the doctrines of Ayurveda which cannot be easily understood by a student of modern medicine.

There is yet another difficulty and that is of incorrect or inappropriate or misleading translation of words used in a technical way. We shall substantiate our statement by a few examples. (a) The Sanskrit words like *Prakriti* (प्रकृति) *Purusha* (पुरुष), etc., are not understood or translated properly. The *Prakriti* of the *Sankhyas* is not the matter pure and simple of the modern science. It is the basis of all objective existence and gives rise not only to the five elements of the material universe, but also to the psychical. The *Sankhya* arrives at the conception of *Prakriti* and *Panchamahabhutas*, not from the side of Science, but from that of metaphysics. (b) The *Padarthas* (पदार्थ) of the Atomistic Pluralism of the *Vaiseshikas* do not mean material objects for a *padartha* means literally 'the meaning of a word'. A *padartha* is an object which can be thought of (*artha*) and named (*Pada*). So all things which exist, can be cognised and named, in short, all objects of experience and not merely the things of the physical world are *padarthas*. (c) Similarly the word (*गुण*) *Guna* also presents a difficulty. In the *Sankhya* philosophy it is a constituent of *Prakriti*, but in the *Vaiseshik* philosophy it means an attribute or a quality and in the Ayurvedic literature, it means physical character and also a pharmacological property. In ordinary Sanskrit, it means a rope or a quality or secondary. We therefore say that one should have a fairly good command or control over the Sanskrit language before one tries to understand the *Samhitas* of Ayurveda or for a matter of that, the various systems of Indian Philosophy.

From the Vedic times, the Aryan thinkers began to discuss the problems of the origin and nature of the world. The famous *Nasadiya* hymn (*Sukta*) contains the most advanced theory of Creation. See its boldest speculations, which bring out the

mystery of creation, "Who then knows, who has declared it here from whence was born this creation? The Gods came later than this creation, who then knows whence it arose? He, from whom this creation arose, whether he made it or did not make it, the highest seer in the highest heaven he forsooth knows, or does even he not know?"

During the times of the Upanishads, there were two lines of thought. The first regarded *Brahman* as the only Truth and ultimately developed into the Monistic Vedanta of Shankara, whereas the second one, accepting the reality of the world, postulated a dualism which developed into the *Sankhya* philosophy. Both of these schools of thought have attained a prominent position in Indian philosophical thought. The *Nyaya-Vaisheshika* school have also discussed the question of creation and have elaborated an Atomic theory which had its seeds in the Upanishads.

The *Panchamahabhuta* theory is looked upon by the Ayurvedists as a law governing matter, and it is referred to in the discussion of anatomy, physiology, pathology, pharmacology and pharmacy. They have put it to practical test, whereas others have discussed it. Strange to say there were opponents to this theory as well in ancient India. The *Lokayatas* or materialists opposed it. This atheistic school declared that sense perception or *Pratyaksha Pramana* was the only source of knowledge and matter was the only reality, for, it alone is cognisable by the senses, and therefore, what is material is real. The ultimate principles, according to them, were *Prithvi*, *Ap*, *Teyu* and *Vayu*, which are eternal and capable of explaining the development of the world from the amoeba to man. There was no Soul (*Atman* or *Chaitanya*). Just as alcohol is produced as a result of fermentation, so consciousness is produced as a result of the mixture of these four elements. *Akasha* is left out here. There was yet another school of agnosticism which did not accept even sense perception as a source of knowledge and boldly declared that there was nothing eternal, that there was no order anywhere and that, it was not possible for us to know the real nature of things, because our sources of knowledge were imperfect. Charaka has strongly denounced such views and declared his firm faith in theism.

Now let us turn to other systems and see what they have said about Matter. The *Vaisheshikas* have put forth their Atomic theory. It was put forth on metaphysical grounds and not on

pure scientific grounds, was conceived as a result of intuition and meditation and not as a result of laboratory experiments. It was an attempt to simplify the world to thought. The things that we experience are all products, i.e., discrete or made up of parts. They are therefore non eternal. The compounds which are produced are non eternal while the component particles are eternal. The invisible eternal atoms—*Paramanus*—mark the limit of division.

The following extracts throw sufficient light on this theory and its utility. Theory of Atomic combination. Atoms are eternal, ultimate indivisible and infinitesimal. The four kinds of atoms are *Prithvi*, *Ap*, *Tejas* and *Vayu* atoms, possessed of characteristic mass, numerical unit, weight, fluidity (or its opposite), viscosity (or its opposite), velocity (or quantity of impressed motion—*Vega*), also characteristic potential colour, taste, smell or touch, not produced by the chemical operation of heat. *Alasha* has no atomic structure (*Niratayava*) and is absolutely inert (*Nishkriya*) being posited only as the substratum of sound, which is supposed to travel wave like as the manifesting medium or vehicle of *Vayu* (air). Only the other four *Bhutas* unite or disunite in atomic or molecular forms. The orthodox view is that the presence of earth atoms is necessary whenever chemical transformation under the operation of heat takes (*Pakjotpatti*) place. Atoms cannot exist in an uncombined state in creation where, however, it is noted that still atmospheric air is believed to be mono atomic in structure i.e. to consist of masses of atoms in a loose uncombined state" (See—The Positive Sciences of the Ancient Hindus)

These four classes of *Paramanus* are said to produce the four senses of touch, taste, sight and smell. This is why each special sense reveals a single quality, however excited. According to the Ayurvedic view the senses are also *Bhautik* and every sense is capable of receiving only one type of stimulus as that particular sense contains one particular *Bhuta* in excess of others in its constitution. Though, the qualities of earthly things, as colour, taste, smell and tangibility vanish on the destruction of the things themselves they are always found in their respective atoms though in each atom of earth some qualities are produced as a result of heat (*Pakaja*). Water, light and air do not suffer a similar change. The *Paramanus* are said to be globular, though it does not follow that they have parts according to the *Nyaya—Vaisheshika* school. The atoms are naturally passive and their movement is due to external impact. During the dissolution of the world—*Pralaya*—the atoms subsist without

producing any effects. They then remain isolated and motionless. According to *Vaiseshika*, the movement of the ultimate atoms arises from a peculiar *Dharma*. The qualities of all products are due to the atoms of which they are composed. The *Vaiseshikas* have discussed other points of interest concerning physico-chemical changes. But we cannot go into details here. The Ayurvedic physicians have utilized these views in preparing drugs of mineral origin where heat plays a prominent part in preparing *Bhasmas*.

Some scholars have argued that this atomic theory of the Ancient Hindus shows Greek influence. There is not sufficient evidence to prove this. On the contrary, if one goes into details, he will at once realise the fundamental difference between the two—Greek and Indian—atomic theories

- (i) According to Democritus, atoms have only quantitative differences and not qualitative ones.
- (ii) For Democritus and Epicurus, the atoms are by nature in motion, while for Kanada, they are primarily at rest. (Motion comes in by *Dharma* at the will of God).
- (iii) While Democritus believed it is possible for atoms to constitute Souls, the *Vaiseshikas* distinguish Souls from atoms and regard them as of eternal existence.
- (iv) The Greek atomists developed a mechanical view of the universe,—God vanishing from the world. The early *Vaiseshikas* did not openly admit the hypothesis of God, though later writers accepted it; they made the principle of the moral law or *Dharma* (*Adrasta*) central to their whole system. The atomistic view of the *Vaiseshikas*, is thus coloured by a spiritual tendency which is lacking in the Greek counterpart of it. Their system had emancipation (*Moksha*) as its chief object as is shown by the two aphorisms at the beginning of *Vaiseshika Darshana* by Kanada.

In Greece, as in India, the hypothesis was put forward as a metaphysical one and not a scientifically verified principle. In the nature of the case, empirical verification is not possible. It is a conceptual scheme to explain the facts of nature. It should be noted that there were some conflicting views concerning these atoms. They were said to be globular (*Parimandalya*). Some thought that they had no inside and outside and that they were non-spatial, while there were some who asserted that they

had some sort of magnitude. The order of creation as accepted by the *Vaiseshikas* was *Vayu*, *Ap*, *Prithu*, and *Tejas Akasha* being eternal and all pervading. Thus the atoms combine to form *Mahabhutas*.

This school occupies a pre eminent position in the history of philosophical thought in India. It has given an explanation of our experience. It has given us a comprehensive account of the process of cosmic evolution viewed not as a mere metaphysical speculation but as a positive principle based on the conservation, the transformation and the dissipation of Energy. Its rejection of the rigid categories of the *Nyaya Vaiseshika* as inadequate instruments for describing the complex and fluid universe, makes it a real advance on the theory of atomistic pluralism. It is frankly dualistic and assumes the reality of a knowing Self—*Purusha*—and an object—*Prakriti*—the known. There are two ways of explaining the origin of the physical world. It may be traced to a manifold of ultimate reals as the *Vaiseshikas* have done, or it may be derived from a single substance which is assumed to be complex and all pervasive as the *Sankhyas* have it. The former is described as the theory of creation (*Arambhavada*) for, in it, the things of the world are explained as generated by the putting together of two or more atoms and the latter, as the theory of Evolution (*ParinamaVada*), for, in it, the same are looked upon as the result of transformations with in the primal substance. The *Sankhya* adopts the second mode of explanation and *Prakriti* is the name which it gives to the principle or entity out of which is evolved the objective universe in its infinite diversity. Thus it has resemblance to the materialistic theory. Both the *Sankhya* and the materialists assert the ultimate reality of a primary substance which they regard as eternal, indestructible and ubiquitous. The multiplicity of heterogenous things which we come across in our ordinary experience is traced to this single substance. But the *Prakriti* of the *Sankhyas* can not be compared with matter—pure and simple. Though modern science also, going beyond the diversity of elements is drifting towards one primary substance—materialistic monism—and adopts the theory of evolution to explain diversity of objects of our experience it remains silent about minds, whereas the *Prakriti* of the *Sankhyas* gives rise not only to the five *Mahabhutas* of the material universe but also to the psychical apparatus. Thus it is the basis of all objective existence. The *Sankhyas* derived the conception not from the side of science but from that of metaphysics.

The *Sankhya* doctrine has passed through several stages. Charaka refers to the earliest version along with Gita and Mahabharata, whereas Sushruta refers to the latest version, with his own criticism, because the Ayurvedic school does not accept all the teachings of the later *Sankhya* system *in toto*. We shall see this later on.

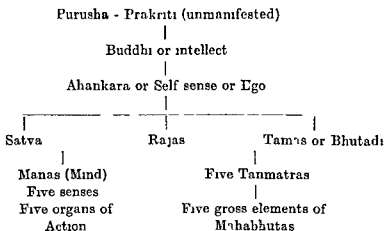
To resume our narrative the *Prakriti* or ultimate ground consists of three *gunas* or constituents, known as *Sattva*, *Rajas* and *Tamas*. They are always changing. These changes in themselves do not produce objective results, so long as the equilibrium continues, but when there is dis-equilibrium (*Gunaksobha*) then the *gunas* act on one another and evolution takes place. According to one authority, these *gunas* are subtle entities, infinite in number according to the diversity of individuals. Though the manifestations of the *gunas* are innumerable, still on account of the possession of certain features in common, they are classified into three kinds. They can neither be created nor destroyed. All changes relate to the position, order, grouping, mixing, separation of the eternally existing essentials, which are always integrating and disintegrating.

The ultimate factors of the universe, then, are :—

- (i) Essence (*Sattva*) or intelligence stuff,
- (ii) Energy (*Rajas*) and,
- (iii) Matter characterised by mass or inertia (*Tamas*).

The Formula of Evolution—Differentiation in integration. Evolution (*Parinama*) in its formal aspect is defined as differentiation in the integrated (*Samsrishta Viveka*). In other words, the process of evolution consists in the development of the differentiated (*Vaishamyā*) within the undifferentiated (*Samyavastha*), of the determinate (*Vishesha*) within the indeterminate (*Avishesha*), of the coherent (*Utasidha*) within the incoherent (*Ayurtasidha*). The evolutionary series is subject to a definite law which it cannot overstep (*Parinama kramaniyam*). The order of succession is not from the whole to parts, nor from parts to the whole, but ever from a relatively less differentiated, less determinate, less coherent whole to a relatively more differentiated, more determinate, more coherent whole. That the process of differentiation evolves out of homogeneity—separated or unrelated parts—which are then integrated into a whole, and that this whole again breaks up by fresh differentiation into isolated factors for a subsequent redisintegration, and so on *ad infinitum* is a fundamen-

tal misconception of the course of material evolution. That the antithesis stands over against the thesis, and that the synthesis supervenes and imposes *unity ab extra* on these two independent and mutually hostile moments is the same radical misconception as regards the dialectical form of cosmic development. In the *Sankhya* view, increasing differentiation proceeds *pari passu* with increasing integration within the evolving whole, so that by this two fold process, what was an incoherent, indeterminate homogeneous whole evolves into a coherent, indeterminate, homogeneous whole. Here is the chart showing the course of Evolution according to the *Sankhya* system



Thus we get (24+1) 25 *Tattvas* of the *Sankhya* system. Each evolve is finer than the one succeeding it and grosser than the one preceding it.

Note the following points of interest —

- (a) Even mind evolves out of *Prakriti*, just as the five gross elements—*Panchamahabhutas*—arise from the same ground substance, though it is made up of very fine matter stuff.
- (b) The five *mahabhutas* are preceded by five *Tanmatras* (Proto matter charged with Energy). These combine in a special way to form atoms which on their behalf combine to form *Panchamahabhutas*. In other words the atoms or *Paramanus* have a infra atomic stage which is not found in the *Nayaya Vaisesika* system.
- (c) Charaka includes both *Atma* (Soul) and *Prakriti* in the ground principle *Avyakta*. He does not mention *Tanmatras* and looks upon the organs of senses as

made up of *Panchabhutas*. His conception and description of *Atma* resembles the *Vedanta* philosophy and he is a staunch theist, whereas the *Sankyas* do not see the utility of bringing in God in their conception of the evolution of the universe. They are dualists

- (d) The five *Tanmatras* are the essences of sound, touch, colour, taste and smell, conceived as physical principles. Each of them is exclusively concerned with one sense, while the gross elements appeal to more than one sense. But it should be remembered that the *Tanmatras* have potential power of affecting the senses only. They must be grouped and re-grouped in a particular form to constitute a new existence as *Paramanus* before they can have the power to affect our senses.
- (e) *Bhutadi* or *Ahankara*, dominated by *Tamas*, is absolutely homogeneous, inert and devoid of all characters except quantum or mass. With the co-operation of *Rajas* (Energy) it is transformed into subtle matter, vibratory, radiant and inherent with energy, and the five *Tanmatras* arise.

"The building up of each kind of *Bhuta-Paramanu* requires two kinds of *Tanmatras* - one kind of *Tanmatra* acting as the central radicle, while another kind constitutes the periphery, as indicated in the following table.

Types of Atoms	Tanmatras which act as the central radicle (corresponding to Protons of modern Sciences)	Tanmatras which act as the peripheral units (corresponding to Electrons of modern science)
(1) Akasha Mono-Tanmatric).	Shabda - Tanmatra - (Proto-matter charged potentially with the energy of sound impacts, 'possesses Parispanda or Vibration energy).	Bhutadi - the root of all Proto-matters, but it is not itself a Tanmatra.
(2) Vayu (Di-Tanmatric)	Sparsha-Tanmatra (Proto-matter charged potentially with the energy of tactile impacts-possesses potentially vibration energy plus tactile energy)	Shabda Tanmatra.

- | | | |
|---|--|----------------------|
| (3) Tejas (Tri
Tanmatric) | Rupa Tanmatra (Proto matter charged potentially with the energy of light and heat impacts possesses potentially vibration energy and tactile energy plus light and heat energy) | Sparsha Tan
matra |
| (4) Ap (Tetra
Tanma
tric) | Rasa Tanmatra (Proto matter charged potentially with energy of taste impacts possesses potentially Vibration energy plus Tactile energy plus Taste energy) | Rupa Tan
matra |
| (5) Prithvi
(Penta
Tanma
tric) | Gandha Tanmatra (Proto matter charged with the energy of smell impacts possesses potentially vibration energy plus light and heat energy plus Taste energy plus smell energy) | Rasa Tan
matra |

The Vedanta School of Philosophy

This school of Vedantists believe *Maya* to be the material cause (*Upadanakarana*) of the world. The Upanishads described the five *Mahabhutas* emanating from the *Atma*—the Supreme being—in a particular order. This order has been upheld by this school. The *Maya* of this school is equivalent to *Prakriti* of the *Saṅkhyas*. But *Maya* and by implication the world originates out of *Brahman* not by a process of evolution—*Parinama*—but of a *Vivasta* (Self alienation). The self alienation of the Absolute acting through *Maya* produces in the beginning *Akasha*. It is one infinite imponderable inert and all pervasive. It stands for both space—an exceedingly fine matter filling all space. However attenuated a substance *Akasha* may be it is yet of the same order as the elements of air fire water and earth. From *Akasha* other subtle elements—*Sukshma bhutas*—arise in an ascending order. These subtle rudiments of matter must be compounded in various ways to give rise to the gross constituent matter of the world. These forms of gross matter are called *Mahabhutas*. There are five kinds of them corresponding to the five *Sukshma bhutas*. But the process by which a *Mahabhuta* is produced from the *Sukshma bhuta* is called *Panchikarana* (Quintuplication). All the five *Sukshma bhutas* are present as ingredients though in different proportions in each *Mahabhuta*. The *Mahabhuta*

Prithivi—gross earth-matter—is composed of four parts of subtle gaseous matter and one part each of the other forms of subtle matter. Similarly with the other *Mahabhutas* runs the process of *Panchikarana*. "From the above formula of evolution it will be seen that according to Vedantic scientists the content of the central radicle is equal to the content of all the peripheral units" The *Sukshmahbhutas* are forms of homogeneous and continuous matter without any atomicity of structure. But the *Mahabhutas* are composite; but even these are regarded as continuous, and without any atomic structure. The *Vedanta* speaks of *Anu* (*Paramanu*) not as an ultimate, but as the smallest conceivable quantum or measure of matter. In the *Sankhya* doctrine the atomic structure is ordinarily accepted. When the *Mahabhutas* are once formed, the different kinds of substances are derived from them by the evolutionary process called *Parinama*. Matter is only the cause in a new collection."

We have seen so far, the views of the ancient Philosophers. With apparent differences, they mean more or less the same thing. But the Atomic Theory (*Paramanuvada*) of the *Nyaya-Vaiseshikas* has been thrown away by the modern researches. It was stoutly opposed in the past also. *Shankaracharya* in his famous *Bhashya* on *Brahmasutras* has opposed it on more than one ground (*Brahmastura* 2.2. 12/26). But the views of the *Sankhyas* and the *Vedantic* philosophers, though based on metaphysical grounds, require careful attention. In their view, even atoms had parts which combined in a definite proportion to make a united whole. In their discussion of the ultimate reality they are more advanced than modern scientific philosophers like Alexander, Whitehead, Jeans and Eddington.

But let us consider what these *Panchamahabhutas* are in modern scientific terminology. They are certainly not the 92 elements of modern science. According to definitions given by the Hindu *Seers* they are *Panchabhautik* substances. Chlorine an element of modern chemistry is *Panchabhautik* from the ancient view point. Not only this, every atom (of the physics) is also *Panchabhautika* from the ancient view point and every atom (of the physics) is also *Panchabhautika* according to modern *Darshanikas*. Their argument is this: the atoms have got a central mass. Proton and Electrons are encircling around it, representing a miniature solar system. There Neutrons also are attached to the Protons. They argue, therefore, that the Proton represents *Prithvi*, the speed of the electrons (*Vega*) represents

Vayu, the electric charges represent *Tejas*, the cohesion between the Proton and the Neutron represents *Ap*, and the space between the Proton and Electrons represents *Alaska*. When the atom itself is thus *Panchabhuta*! what to say of chemical elements? In fact every thing in the objective world that we see is made up of these five *mahabhutas*. In fact the *Paramanus* (Atoms) of the ancient scientists also had parts which combined to form *Mahabhutas*. The *Sukshmaabhutas* and the *Tanmatras* represented an infra atomic stage where we find every *Tanmatra* or every fine *Bhuta* with one special quality or *guna*. According to Seal these *Bhutas* represented five states of matter—during the course of evolution each state having one special quality or *guna* (*Vishistaguna*). Evolution proceeding further these *Sukshma bhutas* by entering into combination form *Sthulabhutas* gross matter (*Mahabhutas*) which develop more—say 20 properties which are known as general properties (*Samanyagunas*) of matter viz., heaviness lightness hardness roughness fluidity viscosity, etc.

As we have said before their analysis of *Panchabhutas* was not based upon chemical analysis. They seem to have proceeded on the basis of their experience in this way: (a) There are only five senses through which we know the environment (b) there are only five *gunas* (or five types of stimuli) each exciting only one sense (c) Therefore there must be five primary qualities and five substances each having one quality as its chief characteristic (d) Because the empirical world had evolved out of one homogenous substance these *Sukshmaabhutas* also must have evolved in a particular order and the number of qualities it possessed marked its place on the scale of evolution. Their conception of evolutionary order (*Atma Prakriti Space Vayu Tejas Ap Prithvi* plants animals) is supported by modern science astronomy, physics chemistry and biology. Even at present there is no lack of new facts and new problems. The problems of Nuclear Physics are getting more and more complex. Over and above Protons and Electrons there are Neutrons Positrons and Mesons to claim their attention. The universe is full of mysteries. The nature God or the ultimate reality eludes us so do many problems defy solution by the cleverest scientist. The mystery behind the mystery of ether—which has been given a decent burial by Einstein and the mystery of mind—all these are puzzles for the scientists. The cosmic rays have opened altogether a new chapter.

The Ayurvedic savants have considered only the *Panchabhautic* substances without going into details of metaphysics,

and considered their *gunas* or properties keeping in view, their effects on the living organism. Drugs and articles of diet were the subjects of their study. The material constituents of the body also were *Panchabhautik*. Hence their reliance on this theory of matter.

The Tridosha Theory.

This theory is the foundation of Ayurvedic science. Its embryological, anatomical, physiological, pathological and therapeutical conceptions rest upon this foundation. It has been the product of the genius of this country and has not been borrowed from outside. There are references to it—'*Tridhatu*'—in the Vedic literature also. The humoral theory of the Greeks was, perhaps, a bad adaptation of the *Tridosha* theory. Evidently, it was the fruit of numerous observations and prolonged discussions spread over centuries. The human mind has been always very curious to understand the secrets of the working of the human body. There are chapters in the *Charaka Samhita* giving glimpses of such discussions showing that several theories were put forth in the past to explain the physiological functions of the human body. By the time these *Samhitas* of Ayurvedic literature were composed before the beginning of the Christian era, the *Tridosha* theory was firmly established. (Shri M. C. Pathak has given a very searching analysis in the historical background of this theory in his brilliant book "*Ayurveda Darshana*.")

But there are still passages in these *Samhitas* which are difficult to understand properly and this is one of the reasons why the theory is not understood sufficiently even by its staunch supporters. With the dawn of modern medicine of the 20th century, its scholars with the knowledge of this medicine turned their attention to *Tridosha* theory and their interpretations also were not identical. But it must be admitted that by further discussions, the subject is more and more elucidated and there is greater unanimity on this theory now than before. Late Mahamahopadhyaya Kaviraj Gananath Sen and Pt. Hariprapannaji, Captain G. Shrinivasa Murti and Shri Yadavji T. Acharya, all have tried to explain this theory to the best of their ability. The technical terms *Dosha*, *Dhatu*, *Mala*, etc., have confused several critics. Unless these words are understood properly and with reference to their context, confusion is bound to become worse confounded. As a result of a conference of the scholars from various provinces of India held at Benares in 1935, more literature has been added and some points have been cleared in the light of modern physiol-

logy We want to point out that the impact of modern anatomy and physiology can be distinctly observed in the current Ayurvedic literature, though to the Vaidyas, this theory is law

This theory has been applied also to animals and plants In other words it comes in wherever we come across life phenomenon But let us confine our discussion to the human body We wish to note down some agreements as well as the differences between the two schools of thought—the Ayurvedic and the modern (a) Both of them believe that the human body is made up of numerous cells and that it starts its life as a single fertilized ovum, which contains elements derived from both the parents Charaka has referred to the countless minute parts of the body of the size of *Paramanu* (C *Sharira Cha* 7 17) which are not visible to the eye owing to their being extremely minute

(b) The physiologists say that in the human body, out of the 92 chemical elements so far known, only some are found which form between them new organic and inorganic compounds In other words the elements which one comes across in the external world are the same as those one finds in the body, though in a new set up in several cases The Ayurvedists also say that the body is made up of the same *Panchabhautik* substances which unite to form the external world which is experienced through our senses But some new *Panchabhautik* substances are also formed which though *Panchabhautik* are found only in a living body (*Vata*, *Pitta* and *Kapha* are also *Panchabhautik*)

(c) That the process of physiological action can be explained on the basis of physico chemical laws as the body is made of the chemical elements which obey these laws in the outside world, say the modern physiologists The Ayurvedists do not think so According to them *Panchamahabhutas* + Soul is body They therefore say that these substances work under the influence of this life principle In other words they accept 'vitalism' which a modern physiologist is reluctant to admit

To resume our narrative in a living body—animal or plant—these three proximate substances viz *Vata Pitta and Kapha* are found which are responsible for all the physiological functions They are found in each and every cell and regulate and conduct all physiological processes in the body They are called *Dhatus* from a physiological point of view, because they support the body and *Doshas* when they undergo qualitative and quantitative

tive changes and lose their normal functions, induce morbid processes and *Malas*, when they spoil the system and so are excreted. They are thus given three descriptive names under different conditions. So one and the same proximate substance—be it *Vata* or *Pitta* or *Kapha* ; *Dhatu* or *Dosha* or *Mala*—are designated differently according to bodily conditions and functions. But there is a convention, that *Vata*, *Pitta* and *Kapha* are mostly called *Doshas* and less frequently called *Dhatus* or *Malas*, *Rasa*, *Rakta* etc., the tissues of the body are called *Dhatus*, and urine, faeces, sweat and numerous other excretions are called *Malas*. Every substance—secretion or excretion or tissue material—has some utility. Hence they have said that the human body rests on the tripod of *Doshas*. *Dhatus* (tissues) and *Malas* (excretions). (*Doshadhatumalamulam hi Shariram - S. Sutra Cha. 15-3*)

1 Now another problem crops up. Are these three words—*Vata*, *Pitta* and *Kapha*—proper names or group (generic) names? If we look at the Ayurvedic Samhitas, these are proper names, but a quotation from *Harivamsha Purana* shows that they are group names. In other words, every word—*Pitta* or *Kapha*—denotes a group of substances having some common property along with other special properties. Thus the *Pitta*—group name—includes several substances with one common property of breaking down complex substances into simple ones with several other special physical and chemical properties. This explanation or modification of the original theory reflects the sub-conscious effect of modern anatomy and physiology. Students of Indian Philosophy will remember at once a similar explanation of the *Sankhya* Philosophy by Vignana Bhikshu, who has shown the *Gunas*—*Sattva*, *Rajas* and *Tamas*—as substantive entities, every one of them representing one kind of numerous subtle entities, having certain features in common. The details of the chemical composition of the body and its metabolic processes have strengthened the *Tridosha* theory as we shall see presently.

Let us see the names of these *Tridhatu*s which are suggestive. *Vata*, *Pitta* and *Shleshma* (*Kapha*) come from the Sanskrit roots *Va*, *Tapa* and *Shlish*, and indicate their actions in the body. Some have translated *Vata* as wind, *Pitta* as bile, and *Shleshma* as foetid sputum which is evidently misleading. When we look to the functions of *Tridhatu*s and pathological conditions induced by them when they are out of order, we get a different impression of them. So let us take them up one by one and study them from a physiological as well as pathological point of view.

In the Ayurvedic works, all the physiological functions are assigned to them, but their working places—anatomical sites—are not described in detail. This has created a little confusion. These three *Dhatus* (*Doshas*) have two forms, *sukshma* (impercipible) and *sthula* (perceptible). But *Vata* is always *sukshma*, whereas, the other two have both the forms.

Applying this statement to a cell—the smallest living unit, we find therein the working of these three. “An aspect of the cell which helps towards understanding it both as chemistry and as life, is that although it is fluid and watery, most of it is not what is called a true solution. Judged by present day lights a drop of true solution of homogeneous liquid, can not in our ordinary sense of the word ‘live’ It is too remote from organization. In the cell there are heterogeneous solutions. The great molecules of protein and aggregated particles are suspended not dissolved. A surface is a field for chemical and physical action. The interior of a pure solution has not in that sense surfaces. But the aggregate of surface in these foamy colloids which are in the cell mounts up to something large. The internal surface of the cell is enormous. It offers a vast field for chemical action. The cell gives chemical results which in the Chemist’s laboratory are to be obtained only by temperatures and pressures far in excess of those the living body has at its command. Yet in the cells, these results are obtained without those temperatures and pressures.

Part of the secret of life is the immense surface of the cell. But the cell is much more than merely a droplet of jelly. The processes going forward in it are co-operatively harmonized. The various catalysts work as co-ordinately as though each had its own compartment in the honey comb and its own turn and time. There is in every cell a visible kernel called the Nucleus, it is directive, a central nest of ferments. Remove it from the cell and cell’s nest gets out of gear and dies.

The cell is an organized factory conducting manifold chemical processes. It hydrolyses, it pulls to pieces, it excretes. Further it constructs. A familiar chemical process is that which is called combustion. It is one of the chemical processes which man induces and employs on an ever increasing scale in his demand from Nature for heat and power. In brief, it is an energy system whose energy is turned to maintaining itself, for instance by (1) nutrition, that is replenishing the system with more energy in suitable kind, (2) growth, that is, extending the system, (3)

excretion, that is, separating from the system energy no longer suitable in pattern; (4) mass movements of its parts, on activity which is intrinsically developed, such as locomotion, feeding and so on; (5) reproduction, that is, generating 'a new system independent of itself, a young individual potentially' at least of its own kind. To behave in this way is in common and convenient phrase 'to manifest Life', (Sherington - Man on his Nature Ch. III).

The Ayurvedic "Seers" have emphatically said that these three *Dhatus* live in each and every cell (Charak Sutra 20-9). So they must be found in the living cell. Cytology made rapid advances with the aid of an optical microscope. Now we are living in the age of an electron microscope, which promises new avenues of approach to the study of micro-structures, and especially to those of living material. At present, however, we can try to find out some known substances in a cell, which have the nearest approach to the nature of *Tridhatu* (or *Tridoshas*). The Ayurvedists have said that *Vata* or (*Vayu*) is unmanifested (*Avyakta*) and is known by its functions (*Vyaktakarma*). It is responsible for unification and division (*Samyoga* and *Viyoga*) of cells, (C. Sha. 7-17). These words make it clear that *Vata* resides in the nucleus of a cell. The root '*Va*' means to go or to direct, Thus the *Vayu Dhatu* directs or controls the intra-cellular processes and is responsible for movements or intra-cellular currents. It is not any particle but energy which resides in the nucleus which exercises its controlling influence over the whole cell.

The catalysts or enzymes which break down complex substances into simple ones during katabolism and liberate energy can be included in *Pitta Dhatu*, because substance of the *Pitta* class or group are involved in 'breaking down complex substances into simple ones with the evolution of heat. See the root *Tapa* to generate heat, to make warm, from which the word *Pitta* is derived. While *Shleshma* comes from the root *Shlish* to cling, to embrace meaning that *Kapha* or *Shleshma* is responsible for cohesiveness. It keeps the big molecules together in the intra-cellular material, tissue fluid, etc. It also forms the inter-cellular material, tissue fluid, etc. The other properties of *Shleshma Dhatu* also fit in very well. Thus it plays an important part in anabolism.

Before we leave cells which combine to form tissues, we draw the attention of the interested to *Dhatwagnis* and *Bhutagnis*

whose existence have been referred to by Charaka. Seven *Dhatus* (tissues) and five *Bhutas* according to Ayurvedists are served by these twelve *Agnis* (lit. fires) in their metabolic processes and their description will be better understood with that of *Pitta Dhatu*. Hence we take it up first in the discussion of three *Dhatus*—*Vata*, *Pitta* and *Kapha*.

The Pitta Dhatu According to a rule that all the *Maha bhutas* are represented in the body, the *Tejas Mahabhuta* is represented in the body by *Pitta* though it is itself *Panchabhautic* in its composition. In its subtle form (*Sukshma*) it is present in every cell as we have seen just now. But its gross form (*Sthula*) is also visible in the several parts of the body. Historically speaking, Sushruta is the first writer to give them special names, though its functions have been elaborated by both. Vagbhata has added some details, whereas Bhela has said something which is not properly understood because of faulty readings.

From a modern physiological view point the word *Pitta* is a group name and contains several substances. Even the five varieties are also group names, as we shall see presently. When *Pitta* goes out of gear it is addressed as *Dosha*, though in the majority of cases it has been referred to as *Dosha*. The five varieties are named as follows —

- (1) *Pachaka* - that which digests
- (2) *Ranjaka* „ „ imparts colour,
- (3) *Sadhaka* „ „ helps efforts,
- (4) *Alochaka* „ „ helps vision,
- (5) *Bhrajaka* „ „ shines

Now we shall see where these are located and what their functions in detail are.

(1) *Pachaka Pitta* According to the Ayurvedic texts, it resides in the lower part of the stomach and in the small intestines. The various stages of digestion (*Astha paka*) have been adequately described by Charaka. Thus, this sub group includes in physiological terms, saliva, gastric and pancreatic juices, succus entericus and bile, with all the enzymes. As a result of the activity of *Pachaka Pitta*, the chyle is prepared and its liquid essence is absorbed into the body, which now assumes the name *Rasa Dhatu* or liquid precursor of blood, while the remaining portion is excreted in the form of faeces, urine, sweat, etc.

Thus *Pachaka Pitta* prepares the ground for the action of *Dhatwagnis* and *Bhutagnis* which reside in the various tissues and

which are responsible for cell metabolism. If the *Pachaka Pitta* or (*Jatharagni*) fails to do its duty properly, the other subservient *Agnis* find it difficult to assimilate the products of the primary digestion. If the digestive processes in the alimentary canal are on a major scale, then the similar processes in cells are in a minor scale. There, it was said by the Ayurvedists, that this primary digestion—the work of *Jatharagni*—helps other *Agnis* and if this fails, others also fail to discharge their duty. Digestion, bodily temperature, hunger and thirst are all dependent on the work of *Pachaka Pitta* according to Charaka. Insulin—the internal secretion of the pancreas—also should be included in this class, inasmuch as it helps in the utilization of glucose by the tissues. The mechanical processes of digestion are regulated by *Vayu*.

(2) *Ranjaka Pitta*: According to the Ayurvedic texts this *Pitta* resides in the liver, spleen and stomach. It imparts redness to the *Rasadhatu* which is then known as *Rakta* or blood. How is this statement to be interpreted? No doubt, before the fifth month of foetal life, blood is formed by the liver and spleen. Also when there is great demand for more blood in pernicious anaemia, small islands of myeloid tissue may develop in the liver and possibly in the spleen. Thus extra-medullary blood formation may occur in abnormal conditions, though we do not know upto what extent. But here, the Ayurvedic texts have described a normal physiological process. So we may interpret it in this way keeping in view the modern views. The *Ranjaka-Pitta* means the hæmopoietic principle of modern physiologists. The function of the marrow has not been alluded to by the Ayurvedic texts. They have emphasized liver, stomach and spleen. But the dramatic result of the liver therapy in pernicious anaemia has shown that the hæmopoietic principle stimulates maturation of the red cells of the marrow. This principle, though stored in the liver and also in the stomach and kidney, is produced in the stomach during the process of digestion. As a result of the brilliant investigations of Castle, it would appear that the hæmopoietic principle is produced by the interaction of two factors, an intrinsic factor in the gastric juice and extrinsic factor in the protein of the food. The intrinsic or gastric factor is not the acid nor the pepsin of the gastric juice, but some specific factor not so far determined. So this is clearly the *Ranjaka Pitta* which controls the function of the marrow.

† (3) *Sadhaka Pitta* has been located in the heart and has marked effect on mental functions. Fear or bravery, calmness

or anger, confusion or clarity of sensory organs no effects of abnormal and or, normal *Sadhaka Pitta*. It has been laid down that all the three *Dhosas* though *Panchabhautik* have effect on the bodily as well as mental functions and thus we come across the effects of these *Doshas* on the mental functions as well.

What can this *Pitta* be? By the heart we can infer that there should be some substance of *Pitta* nature in the heart itself or in circulation. When we look to the functions of abnormal *Sadhaka Pitta* we are tempted to call it a group of internal secretions or hormones running in circulation and having the power to raise or lower the activity level of the body or of certain organs. The thyroid, the parathyroids, the adrenals, the gonads and the pituitary—the master gland—all of these flock to our memory. But we feel diagnosis of a particular endocrine disturbance is scarcely possible from the functions enumerated above and at other places in the *Samhitas*. But if we have got to vote for one we will choose the adrenals. Nowadays it has been proved that nerves do not act on tissues directly, but through the agency of chemical mediators. In the heart, the sympathetic ending secretes adrenaline which acts upon it and quickens the beat. We leave the question open for the readers to draw their own conclusion.

(4) *Alochaka Pitta* has been located in the eye and it helps the visualisation of external objects. The change effected by the agency of light which falls upon the retina is a physico-chemical alteration in the protoplasm and this change stimulates the optic nerve endings. Thus the visual—purple (Rhodopsin) has a striking resemblance to the description of the *Alochaka Pitta*.

(5) *Bhrajaka Pitta* has been located in the skin. Its functions are regulation of the temperature of the body (heat—regulation) secretion of sweat and sebum to keep it soft and absorption of oily materials. The unbroken skin with the help of *Bhrajaka Pitta* brings about some sort of physico-chemical change (*Pakti*) in drugs applied to it by way of pastes or poultices or plasters or by way ofunction. This *Pitta* is responsible also for imparting colour and complexion to the skin. What substance this is we cannot say, as for several functions of the skin sweat and sebaceous glands are bound together. But the cutaneous cells do not form merely a mechanical covering of the body, but play some active part in absorption so that drugs passing through it are turned into some assimilable form to the other tissues. These characteristic intra-cellular substances of the skin are comparable

in their functions to *Bhrajaka Pitta*. Wherever there is some sort of *Paka*, *Pitta* should be there.

Bhela has described two types of *Alochaka Pitta*. One type is the same as referred to by others (visual-purple) But the other type—*Budhivaishesika*—is located in the frontal lobe, just behind the eyebrows. Its functions are mostly mental, viz., perception, retention, recall, memory, desires, instincts and concentration. These higher mental or psychological functions are due to a type of *Pitta*. Others have used the word *Medha* or intellect, but here, we find many of them. Can we say that these are the functions of the silent areas of the frontal lobes or are we drawing upon our imagination? Similarly he uses the word *Rajak* for *Ranjaka Pitta* (haemopoietic principle) of which we read in other *Samhitas*. But the *Ranjaka Pitta* of Bhela again helps mental functions. Of course the terms *Moha* and *Prasada* give similar meanings. The *Rajakagni* of Bhela is located inside the brain, in the central part. It helps in receiving sensory impulses coming up from the organs of sensation and from those of action (*Karmendriyagni*) and in bringing about their association. Similarly his *Sadhaka Pitta* helps in the fulfilment of higher spiritual aims. It should be noted that Bhela has located mind also between the hard palate and the roof of the skull. He has given names to various *Agnis*, though Charaka has not done so. But evidently, he differs from other prominent writers and therefore we have chosen to record his views.

Before we finish this description of *Agnis* or *Pitta Dhatu*, we draw the attention to one word '*Adrishta*' used by Sushruta. The *Pachaka Pitta* group—*Jatharagni*—works by some unknown principle and that it helps the work of other *Pittas* from its own place. We may interpret it that the digestive juices with their enzymes are working in a mysterious way and the physico-chemical changes brought about by them cannot be reproduced in an ordinary test-tube at the same temperature and pressure (under laboratory conditions) which exist in the alimentary canal, and if the work of *Jatharagni* is not done satisfactorily, other *Agnis* will not be able to discharge their functions properly. In fact, there is much parallelism of facts, hiding itself behind the technical Sanskrit term.

Shleshma or *Kapha Dhatu* is also found every where in the body and is a group of substances of fluid or semifluid in character, mainly made up of *Prithvi* and *Ap-bhutas*, and keeps minute particles together. Charaka enumerates the functions of

normal and abnormal *Kapha* as "Compactness or looseness, bulkiness or thinness enthusiasm or idleness, clarity or confusion as well as other such opposite functions" (Charaka S 12—12) We have seen how *Pitta* is connected with heat production *Kapha* on the contrary is connected with fluids of the body But the functions of both are complementary to each other and not opposite The five sub groups of *Kaphadhatu* according to place and functions are as follows —

(1) *Kledaka Kapha* (that which moistens) represents the mucous secretion of the stomach (and of the digestive tract also) It moistens lubricates and produces the mucous membrane of the stomach and helps the digestive processes This *Kapha* helps other types of *Kapha* also Just as *Pachala Pitta* helps all other types of *Pittas* this *Kledaka Kapha* of the stomach helps other *Kaphas* The moment it is deranged all other varieties also suffer

(2) *Avalambaka Kapha* (one which supports) seems to be a big sub group Its chief place is the chest (*Urah*) and, "by its special power it helps the working of the heart, in company with the food products which are absorbed from the alimentary canal" It should be here made clear that *Kapha* does not always mean mucous secretion Here in the chest we find pleural and pericardial fluids which belong to *Kapha* group Also the mucous membrane of the respiratory tract is moistened by *Kapha* or *Shleshma* In fact the lungs are named *Shleshmabhuvan*" by Charaka So, they are decidedly the place for *Kapha* How the *Avalambaka Kapha* helps the working of the heart demands careful consideration If there is no proper absorption of fluid containing sufficient nourishing elements the liquid portion of the blood suffers and if there is no sufficient quantity of blood to contract upon the working of the heart suffers So with the help of *Annarasa*, the fluid in the pericardium helps the working of the heart Similarly the pleural fluid supports the working of the lungs One more function of *Avalambaka* is the support it gives to tripartite joint (*Trika*) This may mean support to the shoulder joint where the upper end of humerus the scapula and the clavicle articulate The synovial fluid as well as the bursae situated under the muscles—subscapularis and infra spinatus—help the movements of this joint But the objection against this explanation may be that there is already a separate group of *Shleshaka Kapha* which includes synovial fluids However the Ayurvedic texts do not allow any other interpretation But, if we can take the liberty of playing

with another meaning, we shall translate *Trika* not as meeting place of three bones, but that of three viscera or internal organs of the body. Thus, it means a meeting place of both the lungs and the wind pipe. The internal mucous membrane as long as it is covered by the normal mucous secretion facilitates respiratory processes. So the *Avalambaka Kapha* helps both respiration and circulation.

(3) *Bodhaka Kapha* (one that enables to know) resides on the tongue and enables the appreciation of various tastes. The actual work of responding to the taste stimuli is done by nerves through special end-organs (taste-buds) or by means of *Vayu* in the Ayurvedic terminology, but it is essential and obligatory that the article to be tasted must be in a liquid condition so that its taste can be easily perceived by us. This work is done by saliva which is our *Bodhaka Kapha*. It should be noted that the enzyme ptyaline belongs to *Pitta* group. But the rest of the liquid portion represents *Kapha*. The wind pipe and food pipe also have *Kapha*.

(4) *Tarpaka Kapha* (one that satisfies or nourishes) resides in the head and is responsible for proper nourishment of the areas of sensation. This is clearly the cerebro-spinal fluid. It provides nourishment to the nerve cells and gives mechanical support to the structures around. The humours in the eyeball, the lachrymal secretion, the fluid inside the internal ear also can be included in the *Tarpaka Kapha*.

(5) *Sleshaka Kapha* (one that joins) resides in the synovial membranes of all the joints of bones and prevents friction. It is evidentially synovial fluid.

Now, we can make some general remarks. Some mental functions can be referred to *Tarpaka Kapha*. *Kapha* also promotes healing by healthy growth of the granulation tissue and by protecting it against the attack of pyogenic micro-organisms.

Both these *Dhatu*s—*Pitta* and *Kapha*—are under the control of the third—*Vayu*—whose functions we shall now study.

Vayu Dhatu: This *dhatu*—the most powerful of the three—is also a subject of keen discussion. In the earliest times its three varieties were accepted. But the *Samhitas* give description of five types, as we have noted previously in the case of *Pitta* and *Kapha*. During recent times, two interpretations have been given.

(a) Dr. Gananath Sen explained it as nervous energy and showed diagrammatically in his *Pratyaksha Shariram Part 3*,

the places and functions of the five *Vayus*, in terms of the nervous system. In his *Siddhanta Nidan* Vol 1, he has further explained his interpretations of the same. Dr D N Bannerji supported this view from a study of its normal and abnormal functions.

(b) The other scholars of Ayurveda, who are also conversant with modern ideas of physiology explain the secrets of *Vayu Dhatu*. They say that the oxygen and several other gases of the atmospheric air go inside and help the working of the nervous tissue. They admit that the actions of *Vayu* are explicable as those of the nervous system. But the nervous system depends mostly on the free supply of oxygen for its proper working. Therefore the external air is the same as internal *Vayu* and that, *Vayu Bhuta* in company with *Alashabhuta* help the functions of the nervous system. Of course this shows clearly the influence of modern views. Dr Lakshminpathy looks upon *Vayu* as a subtle, extremely volatile substance generated in the intestines.

Not only this. These scholars have brought to light valuable information from the *Tantrikagranthas*, about the detailed description of the nervous system. The *Tantrikas* were certainly not the physiologists, but were Yogis trying for emancipation from everything earthly. But they had gained some knowledge of bodily and mental functions by some physical exercises and rules of mental discipline. By their introspection and intuition they have described some anatomical structures and their functions with amazing accuracy. (See *Shatchakra Nirupan* and its commentary). Drs Sen Pathak and Bannerjee all have emphasized this fact. But strange to say, this material was not utilized by the Ayurvedic authors and it is difficult to say why. Only one thing can be said that the Ayurvedic scholars who have paid greater attention to the function rather than to the structure have emphasised physiology more than anatomy. Their *Tridhatu* and *Tridosh* theory (*Doshadhatumala Vignana*) satisfied the need of the physician. Consequently anatomy and physiology were not treated independently as sub branches of medical science.

To return to the main topic all the functions of the cerebro spinal as well as the autonomic nervous systems, as we understand them at present, were taken together and put under five different groups. They were five types of *Vayus*. We shall take them one by one.

(1) *Prana Vayu* : This resides in the mouth, head, ear, tongue, nose and chest. Its functions are respiration, deglutition, sneezing, spitting, eructation etc. It is the main support of all other kinds of *Vayu*. When it is deranged, it will give rise to dyspnoea, cough, coryza, hoarseness of voice, hiccough etc.

(2) *Udana Vayu* : This resides in the larynx, chest and umbilical region. Its functions are speech (singing), directing mental activity, giving enthusiasm, mental and physical strength and impart colour to the body. Its derangement will lead to disorders of eye, ear, nose, throat and heart. Chakrapani has remarked that in spite of there being a common seat—chest—for *Prana* and *Udana* they are different because of their functions.

(3) *Samana Vayu* : This *Vayu* resides in the stomach and duodenum, by the side of *Pachakagni*. Its functions are to help digestion and to separate the waste products from the products of digestion. It also regulates the working of ducts, carrying away sweat, water and *Doshas*. When it is deranged, it will lead to tumour formation, indigestion, diarrhoea etc.

(4) *Vyana Vayu* : This *Vayu* is present everywhere in the body. Its functions are circulation of *Rasa Dhatu* and blood, formation of sweat and lymph, various motor activities of the body, convulsions, closing of the eyelids etc. When deranged, it gives rise to diseases like fevers, diarrhoea, haemorrhagic diseases and tuberculosis.

(5) *Apana Vayu* : This resides in the region of umbilicus, colon, rectum, bladder, penis, testis, hip joint and the thighs. Its functions are defaecation, micturition, menstruation, seminal discharge and bearing down of the foetus at the proper time. When deranged, it gives rise to diseases of the urogenetary system as well as of the rectum.

We have described thus far five *Vayus* as given in Charaka Samhita from the portion which has been contributed by Dridhabala who has revised or re-written the original work of Charaka. But a paragraph from the 12th Chapter of Sutrasthana in Charaka Samhita gives a better description. In that long paragraph the functions of *Vayu* is elaborately stated, and this convinces us of the mysterious nature of *Vayu* (Nervous energy).

There are passages to show that the derangements caused by abnormal *Vayu* are most morbid in the colon, bladder, legs, feet, bones and the rectum. The description of hemiplegia, paraplegia, facial paralysis, convulsions, lathyrism and neuralgic pains

convincing us of the fact that under the heading *Vatarogas* several disorders of the nervous system have been described.

But apart from pure *Vata* disorders (*Valvyadhis*), there is a host of diseases in which all the three—*Vata Pitta* and *Kapha*—are involved when they are called *Doshas*. So long as they are in equilibrium, there is no disease. But the very moment that equilibrium is disturbed, disease arises. The field of physiology is over and we enter that of pathology now, which requires separate consideration.

It should be noted that all these *Dhatus* have marked effects on mental functions. In other words our physiological processes have a direct influence upon our mental processes also. Biochemistry has brought to light several organic and inorganic substances which are found in our body. If we accept these three *Dhatus* as big broad based groups, they can be included in one of them.

Section II

In the first section, we have dealt with the three important theories of the Ayurvedic system. In this section we propose to discuss some other topics which will enable the unprejudiced readers to form their own conclusions about this system.

The three basic elements in the problem of disease are man, the lesion and the environmental stress. We are at present very much engaged with the latter two, whereas the Ayurvedic thinkers were interested in Man. We propose to deal with this point.

They stressed the unity of organism in its reactions to the environmental stress. "The whole living world rests on the tripod of mind, soul and body. They are inter dependent. Happiness or unhappiness, confusion or clarity, life or death, every thing depends upon this tripod. The Ayurveda is meant for the benefit of this" (C S 1—46—47). They have discussed, therefore mind, soul and body in their doctrines. This view point also finds expression in their definition of health, in the causation of disease, in the general methods of examination of the patient, and also his treatment. They have defined health as follows: "A healthy man is one in whom all the doshas—*Vata*, *Pitta* and *Kapha*—are in equilibrium, whose power of digestion is normal, the tissues and excretions of whose body are normal, as well as soul, senses and mind are in full vigour" (Sushruta S 15 41). In this definition, not only one's anatomical and physiological but mental condition also have been included. Similarly in the examina-

tion of the patient, Charka has advocated physiological examination also. (C. V. Cha. 8). The following words are memorable: "One who does not enter with the lamp of knowledge the very innermost parts of the patient in order to arrive at a correct diagnosis, can never treat the disease properly." (C. Viman Cha. IV).

How far this ideal is being followed by the present Ayurvedists we cannot say, but we point out the ideology of the system. Merit and demerit as well as bad actions of the past life are enumerated amongst the causes of disease and performing meritorious deeds and service of the holy form part of therapeutics, especially in treatment of mental disorders. This is how Ayurveda is connected with religion and philosophy.

Heredity and Constitution in Disease.

In the causation of disease two great factors always demand consideration. These are environment and heredity. We have studied the environmental factors and from the beginning of the present century we have been studying the intricate problems of heredity. This study has served to show, where proof is needed, that men are not created free and equal but handicapped from the beginning.

Let us see what the Ayurvedists have said about these problems. Among the extrinsic factors of disease we have made rapid strides and the present day bacteriology is far advanced, for which we are thankful to the discovery of the microscope. Though they have described worms, some external parasites and some minute pathological organisms invisible to the eyes, we cannot fail to see the handicap under which they were working. They knew well that some diseases were contagious and Sushruta has made a pointed reference to them while discussing leprosy and other diseases of skin (S. N. Cha. 5). But the infectivity of certain diseases (*Sankrāmakatua*) did not attract their attention sufficiently as they paid more attention to the soil than to the seed, with the result that, the seeds did not come in for further enquiry. In the case of syphilis, elephantiasis, malaria, plague, and guineaworm infection, they came first near the truth and then missed the connecting link, evidently due to the absence of microscope. But their observations and inferences in those remote times, deserve admiration.

The more wonderful contribution from them has been in the field of heredity. While discussing the nourishment and the

healthy growth of an embryo and factors affecting its development, Charaka has taken up the knotty problem of heredity. His views can be summarised as follows:

(a) The ovum as well as the sperm contain some minute parts representing the various parts of the body. This is why the child resembles the parents. (C Sha Cha 3 17). These minute parts are chromosomes of the modern biology. So long as these minute parts remain healthy, the hereditary characters will be transmitted in an orderly manner.

(b) But if any one of these minute parts (chromosomes) is damaged, this will be repeated as a defect in the child. In many cases the parents may be diseased or may have some physical defects but if the chromosomes are all right, the child is normal. This is a partial explanation of variations and mutations. All the diseases are not transmitted according to them. But hereditary tendencies have been referred to in the case of tuberculosis, leprosy, diabetes, etc.

(c) The children of the diseased parents do not develop the hereditary disease at once. They do so when other causes combine and disturb the particular *Dosha*. In other words, if sufficient precaution is taken, the onset can be checked to some extent.

(d) Hereditary diseases are generally incurable (*Asadhya*). One cannot imagine how in the absence of a microscope they made reference to the minute parts of an ovum or a sperm.

Along with the question of infection follows the question of resistance to diseases. What we call immunity at present has been referred to by them as *Bala* or strength to resist the attack of disease. The discussion comes up while pointing out the utility of nutritive diet (*Histahara*). How is it that the people, taking a nutritious or wholesome diet, are found suffering from diseases whereas some though doing the reverse are found free from them? To this query, the reply has been given that over and above the wholesome food there are other causes of diseases. It is quite true that wholesome food will give strength to resist the invasion of disease processes but if other causes of diseases are operating, mere food will not give sufficient strength to oppose them. For example, changes in season (*Kala*), or faults of intellect which does not allow man to take proper precautions against inimical environments or to take proper decisions at the changing circumstances and overuse, underuse or misuse of the organs of senses disturb the equilibrium of the *Doshas* and the

man becomes, assailed by disease even though he may be taking wholesome food.

What is this strength (*Bala*) then? This *Bala* or (resistance) immunity to disease has been described to be of three types:—

(1) *Sahaja* (Natural), which is there from the very birth. *Bala* means physical as well as mental strength.

(2) *Kalaja* or strength (physical as well as mental) which depends upon the season and age of the individual. We know the effects of season and age upon the power of resistance to disease.

(3) *Uktikrutam* or acquired strength by suitable diet, exercise, rest, etc., Our efforts at acquiring immunity—active or passive—come under this category. Thus, their attention was mainly turned to man—the soil than to the seeds in the form of pathogenic germs.

The subject of constitution is bound with that of heredity. Children of the same parents do not react equally to the environmental stress. In fact no two human beings are alike. To solve this puzzle the theory of temperaments (*Prakriti*) was brought in. The constitutional differences also attracted their attention. Constitution, according to modern ideas, is “that aggregate of hereditary characters, influenced more or less by environment, which determines the individual’s reaction, successful or unsuccessful, to the stress of environment.” The Ayurvedic Rishis in their efforts to find out the individual, human cause of sickness, found out that, the temperament of an individual was determined at the time of fertilization of the ovum. The predominant *Dhatu*—*Vata*, *Pitta* or *Kapha*—in the fertilized ovum determined the future temperament of the individual. We should remember here that the gametes contain three *Dhatu*s. So they also exert their influence along with the chromosomes in deciding the constitution of the new individual. If these *Dhatu*s are in equal proportion, the child will be normal—both mentally and physically—which is not the case very often. According to Charaka, there are other factors also, which operate upon the development of the foetus and thus influence the temperament. They are the season of conception, age of the mother, condition—healthy or unhealthy—of the uterus, the diet and other conditions of rest, fatigue, exercise, etc., of the mother, and the *Panchabhutic* substances in the maternal blood. We can understand readily the factors enumerated here.

Thus the Ayurvedists have accepted the doctrine of temperament and described its four varieties. The anatomical and physiological variations along with mental characteristics and dreams have been described in detail. Thus, they have tried to show why a particular person is more liable to a particular ailment than the other.

The anatomical variations also drew their attention and they have tried to link up the pathological conditions with these variations. For example, Charaka says, the body of the patient should be examined. By good body or good build, it is meant that one has got bones which are normally shaped and properly arranged, has got joints well protected and strengthened by ligaments, has got muscles traversing in their proper positions (C V Cha 8). Bodies which are very long (gigantism) or very short (dwarfism), exceedingly hairy or hairless, extremely dark or extremely fair, very fatty or very thin are despicable (C Sutra Cha 21).

In the same manner Charaka has described the anatomical aspect of personality which can withstand the attack of diseases. He has also said that all persons have not equal mental strength. It is also variable. He has therefore divided it into three classes viz., strong, medium and weak will power. One should not be deceived, he says merely by the physical appearance of a man. Some times persons with big bodies have got weak minds. They cannot bear the slightest pain, are very timid and fainthearted in the slightest adversity. It has also been pointed out that the ulcers of the strong minded heal very easily. We are trying to show that the effect of mental powers on the pathological processes has been correctly noted by them.

At present, when we are studying the anatomical, physiological, immunological and physical reactions of a personality to environmental influences, the doctrine of temperament demands, or shall we say merit a reconsideration before it is thrown out. We are trying to correlate symptoms to the lesions but still there are a number of symptoms which we cannot relate to any lesion. On the contrary, the Ayurvedists explain many symptoms on the basis of temperament or *Prakriti*. Perhaps both sides have got to give and take.

Pathological Material

The pathology in the Ayurvedic system is the pathology of the three *Dhatu*s—*Vata*, *Pitta* and *Kapha*—which are called *Doshas* pathologically and *malas*, when they become deranged and

spoil other tissues of the body to produce diseases. They normally conduct physiological processes and under abnormal conditions give rise to pathological symptoms. They have repeatedly said that one must understand (*Prakriti*) physiology to grasp pathology (*Vikriti*). Charaka has discussed digestive process for this very reason before discussing sprue or *Grahani*. Although it has been said that the signs and symptoms of particular malady are due to the interaction between the *Doshas* and the tissues, no mention of lesions is available. To the modern reader this will look strange. But if we can remember that in the absence of post mortem examination and microscope, this sort of study cannot be expected. They have resorted to the slightest variations in symptoms and tried to explain them with the help of *Tridosha* theory.

The *Tridoshas* lose their equilibrium due to various causes which have been tabulated. Changes of season, diet, general conduct of life, mental causes etc., play a predominant part. The fact of their increase or decrease has to be inferred from symptoms. When they increase they pass through six stages. We give below these stages to show how one is reminded of the pathological description of toxæmia, septicæmia, pyæmia, etc., in the case of infection

When the *Doshas*, as a result of various causes, increase in quantity, they pass through the following stages :—

(1) *Sanchaya* or collection. They collect in their respective places.

(2) *Prakopa* or excitation or irritation. After stagnation, as a result of causes of irritation and lack of treatment, they get irritated and leaving aside their normal sites they spread by.

(3) *Prasara* or spread to other places. After this stage, they, locate themselves in a new place and give rise to new symptoms—*Sithansamshraya*.

(4) *Vyakti* or manifestation. Once located in a new anatomical position, they manifest their existence more powerfully and one can spot them out correctly.

(5) *Bheda* or variation. In this condition the disease takes a turn and becomes cured or chronic. In surgical diseases, abscesses and tumours come to the surface and ulcerate or bleed, whereas in medical complaints, fevers become chronic, and new complications develop which affect the prognosis. In this stage, the disease is clearly marked out from other similar diseases and

differential diagnosis becomes easy. This is a description given by Sushruta (Sutra Cha. 21) mainly instancing surgical disorders, but it has got universal application. How the *Doshas* travel through circulation and locate themselves in a particular position was carefully noted by them. The abdominal cavity, urinary bladder, the penis, the rectum and the bones have been quoted as locations. But we must admit that the tissue changes are not described for the reasons we have mentioned already. The anatomical knowledge in the absence of dissection, soon began to dwindle and this important stage of *Sihanāsamskraya* was not treated with the respect it deserved. The result has been disastrous, inasmuch as, though knowing the symptoms of deranged *Doshas* the practitioner often finds it difficult to locate them. However, in the *Samhitas*, the location of the *Doshas* has been referred to very beautifully. For example, Charaka in describing obstructive jaundice refers to obstruction of the bile duct. Sushruta, while describing the pathology and causes of piles, refers to haemorrhoidal vessels, and Charaka refers to lesions in pulmonary tuberculosis. Such instances can be multiplied more from the Sushruta Samhita. Another noteworthy point is the nature of the disease or *Vyadhiswabhava*. Whenever a symptom was not understood properly from the standpoint of the *Tridosha* theory, this cause was put forth, for example the desire of a patient of sprue to dishes of various tastes, while he knows that he will not be able to digest them. This is *Vyadhiswabhava* or *mahima*. Diseases take their own time howsoever we may try to eradicate them. So the physician was enjoined to keep these two factors also in mind.

The *Doshas* have intimate connection with diet, season and general modes of life. The Ayurvedic *Seers*, were more for the prevention of diseases rather than for their cure. With this preventive aspect in view they preached *Dincharya* and *Rutucharya* and how to lead one's life so that health may not suffer. The details one can study from the literature themselves and if our medical graduates are taught these rules, they will prove to be very beneficial to the public. A bit indifferent to infections from outside, they were more introspective and noted the effects of the climical or favourable environment on the body. A Vaidya is expected to know what *Dosha* is likely to stagnate, collect and get irritated in a particular season, so that he may treat it at once. An instance of a very careful observation of the seasonal variations and their effect on the human body is provided by Sushruta

Sambhita Vasanta or spring season irritates *Kapha Dosha* and therefore, the persons of *Khapa Prakriti* are to be specially treated in this season. Such people are also to follow special regimen. Similar is the case of other *Prakritis* in different seasons. Now, we know that owing to precession of the equinoxes in astronomy, the cycle of seasons is not constant. In the hoary past *Vasanta* was confined to *Chaitra* and *Vaishakha* months of the year. But by the time this *Samhita* was revised, *Vasanta* had shifted back to *Phalguna* and *Chaitra*. If this fact is not noted—the exact onset of season—the rational therapeutics would naturally fail. So as in its revision, a correction has been introduced with the original text paragraph in the *Samhita*.

Charaka has devoted a Chapter to pure devices and epidemics. He has referred to the changes in the soil, in the season, in the atmosphere and in water. The reference to enormous increase of flies, mosquitoes and rats is suggestive. The cause (*Adharma*) was brought in. But he has advocated drug treatment and pious life as remedies. Many fevers of infectious origin have been included under fevers arising as a result of irritation of all the *Doshas* together as in *Sannipata Juara*. On the varieties of *Kushtha* (skin diseases) and *Pramehas* (diseases characterised by abnormality in urine) there was a difference of opinion. This we point out with a view to attract the attention of the research workers to Ayurvedic Nosology. The disorders of children and some gynaecological complaints have been described under *Balagraha* and *Yonivyapat*. Kashyapa has described disorders of pregnancy and purpura with satisfactory details. But unfortunately that book has several paragraphs and chapters missing. But it ranks high in the Ayurvedic literature.

Under this section two more topics are also of great interest. Anthropometry which is a comparatively recent branch of investigating human constitution has been referred to by Charaka, Sushruta and Kashyapa. Whereas the present method tries to establish the connection between the measurement of the various parts of the body in pathological states the Ayurvedic *Seers* have studied the same measurements with a view to find out their bearing on longevity. The measurements of the various parts given by Charaka and Sushruta differ slightly because the actual unit of measurement—*Angula*—was different according to each. This is the explanation given by Chakrapani (See Charaka Vol VIII and Sushruta S C 35 and Kashyapa Sutra).

The second is that of geographical distribution of diseases in ancient India. Bhela and Kashyapa have referred to this point elaborately. Taking Kurukshetra as a central place they have described the prevalence of the chief diseases in various parts. Those who are eager to read more about this topic are requested to refer to Bhela (Page 20) and to the preface of Kashyapa Samhita with the help of Cunningham's Geography of ancient India.

Late Dr. Gananath Sen tried to explain the pathology of the Ayurvedic system and describe the diseases on modern lines but unfortunately his work remained incomplete. New text books should be written with details taken from the existing medical literature.

The Psychological material and Psychiatry

Sir R. N. Chopra says: The Indian systems have been regarded by many of the Western Scholars interested in oriental studies as a rich mine of knowledge from which many useful things might possibly be unearthed. It has been said that the medicine of India was permeated with the scientific spirit as evidenced by a desire by observation and experiment by induction and deduction to prove the secrets of and to build thereon a rational system of medicine. On the other hand a contrary opinion is also not wanting that no benefit will be derived by a study of the old systems which are based mainly on empiricism rather than science. This reasoning however does not seem to be based on sound logic. A system which has survived to such an extent the ravages of time cannot be entirely brushed aside as unscientific. (Indigenous Drugs of India.) What Chopra says after working on indigenous drugs for years holds good when we study the psychological views and the treatment of mental disorders. The mental disorders and their treatment represents one of the eight branches of the Ayurvedic system. Traditionally it was known as *Bhutavidya* which represents the influence of *Atharvaveda* wherein one finds a mixture of medicine and witchcraft. But a closer study of the *Samhitas* shows how during the period of evolution of medical thought in this country the mental disorders were recognised as such and were assigned their true place. In Charaka as well as Sushruta we find the use of the words *Sharira* and *Manasa rogas*.

But let us first take up the discussion of their psychological views. Otherwise their views on mental disorders and their treatment cannot be understood properly. We have made it

clear that the Ayurvedic Seers were affected by the ideas prevalent in those times and at the same time, they have made their original contribution to the problems of metaphysics and philosophy. It shows that they have not merely borrowed but have also given some thing original.

Just as we have nowadays several schools of contemporary psychology, viz., structural and functional psychology, behaviourism, purposivism, Gestalt psychology and Freud's theory, etc., so, also in ancient India there were several philosophical systems having their special ideas about the burning questions of soul, mind, senses, the nature of the world and the ultimate reality. The Ayurvedic Seers, also took part in such discussions and in the *Samhitas* we find the result. Charaka has used words like *Sankhya*, *Yoga*, *Samadhi*, etc, which shows his full acquaintance with the other systems of philosophy like *Sankhya*, *Yoga*, *Nyaya* and *Vaisesika*. But Charaka, Sushruta and other Seers were physicians first and philosophers next. So they have based the treatment of mental disorders on therapeutic measures which include rules for mental discipline also which are noteworthy. There is one fundamental difference between the two currents of thought which we should remember at the very outset. The Western psychologists, except a few, do not believe in an enduring Soul (*Sthayiâtma*) though they accept the existence of 'Psyche.' The Indian psychologists on the contrary, except a few like the Baudhas, believe in the existence of an enduring Soul and mind is looked upon as an instrument of knowledge (*Karana*) and its power to perform various functions is derived from the Soul. Secondly, the goal of all the systems of Indian philosophy was emancipation or self-realization and so, they have treated psychology subjectively using the method of introspection and observation. The modern psychologists treat psychology as a branch of science, many studying it objectively and resorting more and more to laboratory methods—observation and experiment scoring over the introspective method. Thirdly, the enquiry into the nature of the human mind is undertaken keeping clearly this final goal in sight. Hence too, the operations of the whole mind, considered as a functional unity, are described and explained with an *acumen* which the Western psychology displays only now. The *Sâdhaka* had to free himself from the phenomenal manifestations of his mind with the help of the *Dhyana* processes, which though beginning in *Pratyahara* or "introversion" ended by developing the positive spiritual factor of Self. The final goal was complete freedom not of; but from *Mind*.

But of all other systems of philosophy, the Yoga systems of Patanjali had greatest influence, not because of its metaphysical theorising but because of its methodical effort to attain perfection through the control of the different elements of human nature—physical and psychical. The physical body, the active will and the understanding mind are to be brought under control. We shall see that the medical men were also not free from the influence of this Yoga philosophy. Just as at present, Psychiatrists gather their ideas from various schools of psychology and use them with advantage in the treatment of mental maladies, the Ayurvedic Rishis too utilised the psychological material of the various *Darshanas* and used them to advantage.

The Nature of the Senses—the Nervous System

Charaka lays more stress on the five sense-organs and says that the eye ear nose tongue and skin are merely their external locations (*Bahyadhishtana*) their internal locations being in the head (Brain) (Charak C S 17—12). The connecting link between the two was a sensory nerve (*Samgyatana srotas*). These five senses were (*bhautika*) made up of physical elements and each was capable of responding to one type of stimuli corresponding to the functions of these five senses there were five types of sense experience or sensations (*Mano buddhi*) and they were either of fleeting (*Kshaniya*) or lasting and definite in character (*Nischayatmika*). Kashyapa has pointed out that mind eye and ear can receive their stimuli from a distance but nose tongue and skin can function only when their stimuli are in close proximity. Pain is experienced everywhere except in the hair and advancing tips of the nails. But Charaka has dropped a hint and other thinkers have discussed one interesting problem that all the living organisms have not the five organs of sensation, although the functions of these senses are observed in their bodies. These senses have developed in the course of evolution the earliest sense organ being the Jam whose modifications are at the bottom of the five organs of senses. This is a very important observation though the order of evolution of these five senses is not in accordance with modern views. The Jams have discussed this problem in detail. They have also tried to give the details of the end organs. These senses are under the control of mind and the Soul comes into contact with the external world through these senses with mind acting as an intermediary. The Ayurvedic thinkers have said that the *Vayu* is the governing *Dhatu* of the mind as well as of the senses their proper functioning being dependent upon the normal functioning of *Vayu*.

But one does not find the description of the nervous system in the Ayurvedic Samhitas, though the disorders of the nervous system are there and its functions are covered by those of *Vayu Dhatu*. There is one happy simile used by Vagbhata wherein he compares the human body to a tree whose root is above and branches below, which is an indirect reference to the brain and its extension below. This description is available in the *Tantrika* works, wherein, the nerves are called *Nadis*. There were four schools of Yoga philosophy namely—*Mantrayoga*, *Layayoga*, *Rajayoga* and *Hathayoga*. The last named school believed in the mastery of the spirit over the bodily-activities. To achieve this end, they put forth a plan and the knowledge of the nervous system was necessary in the execution of that plan which includes *Asanas*, *Bandhas*, *Mudras* and *Pranayama* or respiratory control.

To resume our topic, they paid more attention to the *Sahasrara* or the brain, *Sushumna* or the spinal cord and to *Ida* and *Pingala* or the left and right chain of sympathetic ganglia. Other fourteen *Nadis* or nerves have been mentioned. The branches coming out of the spinal cord and their distribution do not receive much attention. They have described the six well-known nerve plexes or the *Chakras*. The fact that they have seen these structures with their own eyes or by intuition or by introspection is evident from a simile, where the spinal cord (*Sushumna*) has been compared to a creeper named "*Chavyaralli*." Strange to say that the transverse section of the stem of this creeper resembles exactly that of the spinal cord with a central hole and anterior and posterior horns of grey matter covered by white matter. How can one give such a simile unless he has seen the things himself? How far these *Sadhakas* of *Hathayoga* are successful in achieving their goal is more than we can say. But this much we may definitely say that even today they demonstrate publicly some feats of bodily control which openly defy the truth of human anatomy and physiology. According to them, the third ventricle is the seat of mind during concentration (*Samdahi*), though under normal conditions, its abode is the whole body. This view finds support in increasing physiological importance attached to the thalami and the hypothalamic region. For example, "But in other parts of the brain besides the cerebral cortex, there are anatomical connections linking the two systems. Particularly is this the case in the lower functional levels of the thalamus and adjacent regions; for here, close alongside the walls of cavity

we assume, come in from outside. We may infer that there is nothing in the end that was not in the beginning, no one has ever realised the complexity of a material unit, far less has any one ever analysed mind or identified mind with the brain. The nerves and brain are matter. The Brain is the organ bringing mind into effective activity." This shows our present inability to explain in terms acceptable to science the physical nature of psychic phenomena. We are forced to admit that man has so far failed to grasp his psychic essence in a tangible form.

Under these circumstances let us again refer to the Yoga system of Patanjali and what it had to say in connection with the working of mind and its control—not suppression—without giving rise to Psychoneurosis. We know his method (*Yogabhyasa*) was accepted by all the saints of various faiths and Ayurvedists also accepted that method in mental hygiene. Yoga psychologists say that the *Chitta Vrutis* or modes of mind are infinite in number. But for the sake of facility of description, these mental functions can be divided into two parts. There are certain functions which we can experience directly, whereas there are others, which we can only infer. Let us take up the first group.

(1) *Pramana* or sources of valid knowledge. Our mind gathers information about the outside world through these sources of information which are three in number *Pratyaksha* (perception) *Anumana* (inference) and *Agama* (scriptures). It is however true that though the presented object is the same the resulting sensation may be different depending upon the condition of mind which is constantly under the influence of three *gunas*. When there is no direct knowledge, we infer or take it verbally from other authorities.

(2) *Viparyaya* or delusion or misconception. But the mind always does not come to know the things as they are and feels deluded which is also a mode of mind.

(3) *Vikalpa* or imagination. Our mind at times imagines which is also a kind of mental function.

(4) *Smriti* or memory. This is also a function of mind whereby past impressions are stored up or retained and recalled at the proper time. This powerful mental function shows extreme variations. In the ancient times when writing and printing were absent our fore fathers preserved our literature in the tablets of their powerful memory. The subject of memory has

received plenty of thought in this country *Nyayasāstra* gives about 25 causes of recollection, which include all the causes of the association and recall of ideas according to modern psychology

(5) *Āśīda* or sleep is also one of the modes of the mind for *Samakaras* collected during sleep are also brought back to memory after sleep is over. It is not merely a result of bodily fatigue

But over and above these functions, there are other seven functions which we can only infer. They are —

(1) *Nirodha* or a supreme state of mind when the mind is so very calm that new modifications cannot arise. This is possible with the Yogis only. We cannot know such a serene condition of mind directly

(2) *Dharma* or merit

(3) *Samāskara* or mental traces or residue of our minds we cannot know. We can only infer by their behaviour

(4) *Parinama* or the incessant flux of consciousness passing in the mind is also inferrable

(5) *Jivana* or vegetative functions of life. How the mind is related to the automatic system and how both adjust to each other and carry on life processes we cannot know directly. But we do know by experience that mind has tremendous influence over these life processes going on in the body sustaining life

(6) *Cheshṭa* or movements of mind. How mind works with one sense and at once with another is inferrable by result only. Mental movements are not visible

(7) *Shakti* or power of mind is also inferrable by its capacity to work

We have seen these functions, but our mind does not always maintain the same level of consciousness or attention. Similarly all men do not show equal power of attention some are very bright and alert others are dull whereas some are idiots or imbeciles. The Yoga psychologists thus divide the levels of attention

(1) *Aśhīṭa* or restless when it has an excess of *rajas* and is tossed about by objects. We might fix our attention on objects due to our passions and interests but this kind of concentration does not help us to our real freedom

(2) *Mudha* or blinded or confused when it has got an excess of *tamas* and is possessed by modification of sleep. We

find such a state of mind after diseases or in mentally backward children or people under severe mental stress

(3) *Vikshipta* or distracted when it is unstable on account of natural defects or accidental troubles. The ordinary mind is in this condition pursuing the pleasant and avoiding the unpleasant. These three states of mind are said to be imperfect. The higher two states are as follows —

(4) *Ekagra* or concentrated when it is devoted to one object and is entirely filled with *Sattva*. All master minds of the world show this state of mind. Whatever work they take up they do it with full concentration. The higher the mind the greater is its power of concentration.

(5) *Niruddha* or restricted when new modifications are checked. The Yoga psychologists admit that concentration is a general characteristic of all states of mind though it is found in its most intense form in the state of *Samadhi*.

Every mental modification (function or *Vritti*) leaves behind its own specific *Samaskara* (trace or stamp) or latent tendency on mind which may manifest itself as a conscious state when the occasion arises. Similar *Vrittis* strengthen similar dispositions or *Samasparas*. In other words mental functions or modification leave behind *Samasparas* and *Samasparas* again produce modifications. Thus this wheel of *Vrittis* and *Samasparas* (*Vritti samaskara chakra*) goes on perpetually.

Our mind is an arena of conflicting forces. According to Yoga psychologists there are some desires that seek satisfaction some vital urges of life such as those of self preservation and self reproduction which refuse to be easily controlled. Thus the obstacles (*Vikshepas*) to concentration are —

- (1) *Avidya* or ignorance
- (2) *Asmita* or egoism
- (3) *Raga* or attachment
- (4) *Dvesha* or aversion and
- (5) *Ahinimesha* or clinging to life

There are other concomitant obstacles to concentration namely sickness languor doubt heedlessness laziness worldliness erroneous perception failure to attain concentration and instability in it when attained.

Our mind has evolved out of *Prakriti* and has inertia (*tamas*) of its own. In its structure are *Samaskara Pindas* or

dispositional masses of three types viz., cognitive, affective and conative (*Yanja*, *Kleshaja* and *Dharmadharmaja*).

These *Samaskara Pindas* get organised and are mutually related. These are stored up in our mind as so many latent forces which assume the form of an active tendency (*Vasana*) when according to the law of *Karma* the time for their fruition comes. Thus we may say that our mind is full of *Vasanas* or *Samaskaras*. According to Indian Philosophers, *Samaskaras* may be of this life or of past life. So the mind contained mixed *Samaskaras* of both lives.

The Yoga-practices teach us to control the functions (*Vrittis*) of our mind in such a way that the lower *Samaskaras* may not get hold of them. The mental activities flow on (*Chittanadi*) like a river which may be for our good or evil. How to direct its current in such a way that its flow may be beneficial to one's self and to the society?

To this question, the Yoga-system replies by pointing out an eight-fold way. It can be summed up as follows:—

The *Sadhaka* has got to follow that route. For the sake of ethical preparations, he should follow *Yama* and *Niyama* (abstentions and observances). After that he has got to train his body for this system, recognising the value of the body as much as that of mind, otherwise his path will be blocked. To achieve this end, he has to practise several *Asanas* or postures and *Pranayama* which will benefit physiological functions.

The beneficial effects of both of these are too well known to need emphasis. Again, he should begin *Pratyahara* or introversion, that he should withdraw his senses from their natural outward functioning. The mind should be shut against all impressions from outside, the object being to drive away the vagrant impulses and insistent thoughts, persecutive ideas and obsessions etc. After these five important steps, which aim at physical and mental strength and purity, the *Sadhaka* should start *Dhyana*, *Dharana* and *Samadhi*—a trio which aims at the achievement of full concentration. The mind of the *Sadhaka* is now serene and quiet and directed to the Supreme Self, all previous *Samaskaras* dying out or losing their force. It is now full of compassion, friendliness, joy and happiness.

We have said previously that Charaka has advocated similar measures for mental hygiene and referred to *Samadhi* as well. He has also referred to *Pramanas* or sources of valid knowledge, to

sleep, to dreams, to *Siddhis* or occult powers and to obstacles to visual perception. This material is of psychological interest.

Now let us turn to mental disorders. According to all the authorities *Rajas* and *Tamas* are under normal conditions constituent factors of mind, as mind itself is made up of three *Gunas*. But both these become *Doshas* when they are over-powerful as a result of various causes. Among these causes we find prominence being given to mental causes. Over activity, under activity or perverse activity of mind, intellectual faults, (*Pragna paradha*) and effects of season, age etc (*Kala*) are cited in the list of causes. Again, bodily disorders, injury to the head, alcoholism, and strenuous circumstances which break down the morale of man, inimical environments etc, find due recognition. When all of a sudden, insanity broke out like a bolt from the blue, the theory of possession by evil spirits or demons was invoked. So, their treatment is also two fold. It consists of drugs along with *mantras*, sacred water, sacrifice etc. Had they merely believed in ghosts they would not have advocated drugs and venesection for these conditions.

The disorders referred to by them are —

- (1) Maniac depressive psychoses (*Unmada*) *Kaphonmada* resembles melancholia
- (2) Puerperal insanity (*Prasavonmada*)
- (3) Toxic insanity (*Vishaja Madha*)
- (4) Alcoholic insanity (*Madya Mada*)
- (5) Epilepsy and post epileptic insanity (*Apasmara* and its *Anubandha*)
- (6) Dementia (*Atatwabhimnesia*)
- (7) Insanity due to evil spirits (*Agantukonmada* or *Amanushopasarga*)
- (8) Hysteria (*Apatantraka*)

Charaka has said that the body and mind affect each other. Similarly the three bodily *Doshas* also are affected by mental emotions like anger, fear or sorrow, and mental processes were also affected by bodily *Doshas* like *Vata* whose decrease led to loss of enthusiasm and confusion. Again fear or sorrow led to diarrhoea.

While discussing the etiology of mental disorders Charaka has emphasised three points viz. loss of memory (*Smrutibhramsha*) loss of will power and judgment (*Budhibramsha*) and loss of mental control or equipoise (*Dhrutibhramsha*). One should

be careful about these facts. He has also advised us to control some mental impulses (*Vega*) which are harmful to healthy mental life, (C. S. Cha. 7. 27). While discussing the probable occasions of mental breakdown, he has referred to War (*maha-hava*), destruction of cities or provinces, faults during study—present day mental stress during examinations—and stay in a lonely house.

From Charaka down to Bhavamishra and others, several drugs have been prescribed which are in common use. There are no powerful hypnotics. But *brahmi*, *vacha*, *sarpagandha* (*swarna* gold.), *rasana* (garlic) etc., have stood the test of time. Sushruta has advocated venesection (*sirovyadha*) possibly in cases of high blood pressure leading to mental symptoms.

Now we turn to the Pharmacological views of the Ayurvedic Physicians

On reading the hymns of the Vedas, especially Rigveda, and Atharvaveda and the Samhitas one comes to the conclusion that the knowledge of Pharmacology has evolved in several stages, although some are of the opinion that it was a revelation to the ancient sages. We believe that they gathered this knowledge by the usual method of trial and error, observation and experiment. We give below some mantras from the Vedic texts, throwing light on the views current in those ancient times.

1. "However many (may be) these herbs upon the earth, let them thousand leaves, free from death, from distress."

2. "They who belonging to the *Angirasa*s, grow on mountains and on plains—let those herbs rich in milk, propitious, bewail to our heart.

3. "Both what plants I know, and what I see with the eye; the unknown and what we are acquainted with and those in which we know what is brought together." (Whitney's translation to the preface of Rasayogasagar.)

In the Vedic—texts one reads about 129 medicinal plants with their rough classification and some uses. But this hardly gives us any definite ideas of conditions prevalent in those remote times. Some of the drugs mentioned in the Vedas were forgotten in subsequent times, whereas some like *apamarga*, *kushtha*, *guggulu*, *pippali* and *arka* received better attention and were more extensively used in the times of *Samhitas*. Over and above these medicinal plants, metals like gold, lead, tin, copper etc., were known to the Vedic Rishis, but there is no

evidence to show that they were put to any medicinal uses in the Vedic period. Their medicinal use receives more attention during the *Samhita* time.

The object of this passing reference to the drugs of the Vedic times is to show that there was no definite theory to explain the actions of drugs in those remote days and even if there was one, we have no means of knowing it. One can only infer that the floating ideas of the Vedic times received more thinking and more criticism till they were put together to form a comprehensive theory during the *Samhita* times. There is sufficient internal evidence in the *Samhitas* to show that the theory of *Rasa*, *Guna*, etc., was fully discussed and received modifications by several thinkers. The result of this incessant intellectual activity and numerous observations by several workers was that during the *Samhita* times we find the number of drugs enormously increased. Not only this, but the old empiricism had disappeared, giving place to a definite theory which we take up for discussion.

The Dravyas or medicinal substances. From the Ayurvedic point of view every substance (*Dravya*) is *Panchbhautic* in its composition. These *Panchbhautic* substances have been classified according to different view points, which we will see during the course of our discussion. These substances have some physico-chemical properties (*Gunas*) and by virtue of these, they have some action (*Karma*).

First classification. These *Panchbhautic* substances have been divided into two broad divisions according to their use viz., Drugs and Food (*Aushabha* and *Ahara*) and both of these have been described elaborately in the *Samhitas*. There were some substances like honey which were included in both. The poisonous substances were recognised and included in the first division. It is indeed impossible to distinguish between drugs and poisons. Most remedies given in excess cause toxic symptoms while many poisons are valuable remedies in small doses. This maxim has been duly emphasized by Charaka. The articles of diet we leave aside though their utility also has been explained on this very theory by the Ayurvedic scholars.

Second classification. These *Dravyas*, according to their source were classified as botanical, mineral and animal substances (*Audbhida*, *Parthiva* and *Jangama*), as they were derived from different kingdoms, or they were put into two classes organic and inorganic because animals and plants were looked upon as living organisms.

Third classification. The *Dravyas* were again classified in to five groups according to the particular *Bhuta* predominant in their composition although all of them were *Panhcabhaucic*. Their physical characters have been given as follows :—

- (a) *Parthiva* substances—Heavy, rough, hard, inert, dense, opaque, exciting the sense of smell.
- (b) *Apya* substances—Liquid, viscous, cold, soft, slippery fluid and exciting the sense of taste.
- (c) *Taijasa* substances—Hot, penetrating, subtle, light dry, clear, rarefied, and luminous.
- (d) *Vayavya* substances—Light, cold, dry, transparent rarefied and impingent.
- (e) *Akasa* substances—Imponderable (or light), rarefied, elastic, & capable of sound (Charak—Sustra. Ch, XXVI.)

These characters have special meaning which we shall consider later on.

Fourth classification. These *Dravyas* were again classified into six groups according to their taste or *Rasa*. A substance can have more than one taste. Of them the most predominant one was accepted for the purpose of classification. Thus the *Dravyas* were either of Sweet (*madhura*), Acid (*amla*) Saline (*Lavana*) Bitter (*tikta*), Pungent (*Katu*) or Astringent (*Kashaya*).

Fifth classification. These were again classified according to their pharmacological actions. If one goes through the name of groups, one would find wonderful similarity with the modern groupings. For example, emetics, purgatives, galactagogues, diuretics etc., are there. Drugs acting upon the various physiological systems are not classified as one finds in a modern text book of Pharmacology. But this is not very difficult, if we try to understand the meanings conveyed by the Sanskrit terms used by them to describe the pharmacological actions of drugs. For example.

1. Drugs acting on the alimentary canal.
2. „ „ the heart and circulation.
3. „ „ the kidneys.
4. „ „ the genitry system
5. „ „ skin and its appendages.
6. „ „ Respiratory tract.
7. „ „ Nervous system.
8. „ „ Metabolism.

When we carefully go through the Ayurvedic materia medica, we will find there a relative dearth of hypnotics, germicidal and anaesthetic drugs. The drugs known as *Rakshoghna* are in fact germicidal. But their potency is not very high. On the contrary, we do not come across *Medhya*, *Rasayana* *Vajikarana* drugs in plenty in the modern materia medica.

After referring to *Dravyas*—drugs and diet we go to the properties (*gunas*) of drugs, leaving aside the articles of diet though the same theory is applicable to both.

Gunas or properties. The word *guna* has several meanings in the Sanskrit literature and it has been used in a special sense by the Ayurvedic writers. The *Sanhitas* have used this word *guna* as a constituent of *Prakriti* whereas, the *Vaisesikas* used it in the sense of property, or quality of *Dravya*. The Ayurvedists have used this word *guna* in the sense of physico-chemical and pharmacological qualities or properties of the *Dravyas*. Unless one is familiar with this technical terminology, he cannot understand the description of the action of drugs narrated in the Ayurvedic texts. The total number of *gunas* accepted by the Ayurvedists is 41. But out of these, 20 receive greater attention in the Ayurvedic materia medica. These properties of drugs are to be interpreted, as the Ayurvedists have done, in a technical way. *Guru* and *Laghu* mean heavy and light in ordinary English, and describe the physical properties of a substance. But in the description of the Ayurvedic writers they mean something more. For example, if a drug is described as *Guru* it means that the substance increases the strength of the body, by supplying more nourishment. It also increases the quantity of the excreta and makes one feel languid. Such a substance takes longer time for digestion, promotes *Kapha* and removes the excess of *Vata*. The word *Laghu* is used to describe opposite effects. Similarly *Ushna* and *Sheeta*, does not merely mean hot and cold but something more. These words over and above their physical properties, describe the bodily effects. Rightly it has been said by Sushruta that "the *gunas* or properties of these *Dravyas* (drugs diet) have been inferred from their actions on the body." The reader should consult the *Samhitas* to know all about the 41 *gunas*. *Rasa* or taste of a substance was the most easily recognizable property by tongue and it was used to classify the *Dravyas* as we have already seen. But the ordinary translation *Rasa*—taste—is not fully correct. *Rasa* means something more than taste. Six tastes were recognised. The modern physiologists refuse to accept *Katu* (pungent) and *Kashaya* (astringent).

as primary sensations of taste. These are, according to them, mixed, sensations of taste, and odour or taste and touch. The local, reflex and general actions of the drugs having a particular *Rasa* were studied very minutely. Some *Dravyas* (drugs or articles of diet) had more than one *Rasa*, one predominant and the other subsidiary. The existence of several *Rasas* in a drug was inferred, by the action of that particular drug on the human body. It is a remarkable human achievement that the *Rasa* or *Rasas* of so many substances were determined by tongue and observations on the human beings. The existence of the different *Rasas* in the different *Dravyas* was attributed to their varying *Pañchabhautic* composition. One finds in the *Samlitas* the description of advantages and disadvantages of a particular *Rasa*. For example, substances having sweet taste, when taken in the mouth create pleasant sensation. One feels happy and his hunger is satisfied. His mouth is covered inside by salivary secretion and he feels strong. As this *Rasa* (sweet) is easily assimilable in the body, all the tissues are well nourished. It promotes longevity, gives strength to the body and improves the colour of the skin. It provides the growth of hair, improves the voice and brings about rapid healing of wounds even in the weak and debilitated patients. If a man has fainted or feels burning sensation, this sweet *rasa* proves to be a great boon.

But if one uses the same sweet *Rasa* in excess he will develop obesity, feel dull and sleepy. He will be dyspeptic, will get dyspnoea, cough and numerous other disorders of *Kapha*. He may have vomiting, fainting attacks or aphonia.

We have given here a bit of detailed description. All the *Rasas* have been described in this fashion and one is advised to use articles of diet having different tastes so as not to take one in disregard of the other, keeping in view one's temperament, age and season. Drugs or diet having these *Rasas* bear a definite relation to the increase or decrease of the *Doshas* in the body. So the physician is advised to select drugs of a particular *Rasa*, keeping in mind the predominant *Dosha* of the patient. We request our readers to read the pharmacology of glucose along with a detailed description of the properties of sweet (*Mādura*) substances and draw their own conclusions.

Similarly, we can take up the action of bitter taste (*Tikta*) and can compare it with the pharmacology of bitters. (See, *Charak Sutra*, Chap. XXVI). Substances (Drugs) having a bitter taste, remove aversion to food, although one feels averse to take

them. They kill worms, cure fever, stimulate appetite and help digestion. Thus, we can discuss all the *Rasas*. But we bring in here a new point. The Ayurvedic pharmacologists observed very early that certain drugs having identical *Panchabhautic* constitution and the same taste (*Rasa*) showed different effects. In a search for an explanation of this marked diversity, they hit upon *Veerya* or potency of drugs. There were several views to explain this potency, which was also a variable quality, i.e., some drugs were more potent than others as some were found to lose their potency in the course of time.

What was the nature of this *Veerya* or potency? This much was certain that the *Veerya* of a drug was experienced as soon as it came into contact with the skin or mucous membrane and that, it was also inferred by its pharmacological actions as long as it was in the body. What was it then? There were several answers. Some said it was of two types, and some said it was of eight types. Some said it was a specific power (*Shakti*). Whereas, some said that it was an essence of a drug, owing to favourable admixture of *Bhutas* constituting that drug. Such speculations were quite justifiable in those early days when there were no laboratories for chemical analysis. It is highly creditable to the genius of these ancient *Seers* who inferred some features behind the powerful action of a drug which was not accounted for by its properties or taste alone. From the discussions of the *Veerya* of drugs we can reasonably infer that they meant the 'active principles' of a drug (पृथिव्यादीनां भूतानां सरभावात् चरकटीका-शिवदास सेन). The ancient *Seers* have given out the importance of drugs, growing on a suitable soil (*Prashastabhumi*), have advised to collect them in a suitable season and have given directions to select their special parts—root or fruit or bark or the whole plant etc.,—and store them up in such a way that they may be safe from evil effects of climate and insects. Some drugs are to be used only when they are fresh and some when they are old. They have emphatically pointed out that some drugs lose their *Veerya* after a particular time. If we take into consideration all these statements, we cannot help the conclusion that they were referring to the active principles of a drug under the name of *Veerya*.

After discussing *Veerya*, we take up at this stage the question of *Vipaka*. The various articles of diet of different tastes as well as drugs are acted upon by the digestive juices and they undergo physico-chemical changes. After the absorption of the end products of digestion, they reach various tissues via,

circulation and there is further interaction between them and the bodily tissues. All these topics have been discussed under the heading of *Vipaka* (Digestion). In the outside world, chemical and physical changes, were observed as a result of heat, supplied by fire or sun and by analogy similar changes inside the body were due to a kind of *Agni* (fire). Thirteen *Agnis* in all have been pointed by Charaka inside the human body, the most powerful of them being *Jataragni* in the alimentary canal. Evidently, this *Agni* means the digestive fluids and enzymes of the modern physiology from the oral cavity down to the intestines. There were twelve other *Agnis* (five *Bhutagnis* and seven *Dhatwagnis*) in the body outside the alimentary canal, which dealt with the assimilation of food, bringing about various physico-chemical or, say, bio-chemical changes and helping the formation of various *Dhatus* (tissues) and assimilation of various *Bhutas* or in-organic substances. The description of the general metabolism of modern physiology compares favourably with the functions of these twelve *Agnis*.

They have discussed, under the name *Avasthapaka*, various stages of digestion in the alimentary canal and have described the transformations of the absorbed material under the name of *Nisthapaka*. Leaving aside the detailed discussion of these processes at this place, let us see what they have said about the fate of drugs which is the main subject in this section. They have emphasized the fact that like the articles of food, drugs of the various tastes also were undergoing a change in the alimentary canal. Consequently some drugs although they had the same taste and active principles or *Veerya*, showed different pharmacological reactions. This change was attributed to *Vipaka*, and was inferred by the effects produced on the body. Some drugs like alcohol were absorbed at once before reaching the colon and began to show their effects on the body. They were known as *Vyavayi* and *Vikasi*. The metals presented a difficulty because they were not readily absorbed.

They were therefore turned into the form of *Bhasmas* before their internal administration and were prepared pharmaceutically in such a way that they proved more absorbable and more acceptable to the tissues for assimilation.

Prabhava (specific action). We have discussed *Guna*, *Rasa*, *Veerya* and *Vipaka* till now. But when two drugs had all these factors common and yet, their pharmacological action differed totally, it was attributed to its *Prabhava* or in other words, it was

declared as a specific action of that drug. One cannot always find out reasons for such an action and even in these days of advanced chemical analysis and well equipped pharmacological laboratories we invoke the aid of specific action.

This is but a brief outline of the theory. It has been used to explain the actions of drugs and diet. It has been widely discussed by eminent physicians and slight difference of opinions have also been recorded, regarding the number of *Gunas*, *Rasas*, *Veerya* and *Upala* showing that, it has been widely discussed in the past. Any student of modern pharmacology will be pleased to read in Charaka the action of alcohol on the human body.

It shows how clearly this theory helped them in determining the pharmacology and therapeutics of a drug. They have made wide generalisations by applying it to drugs and diet.

How do the drugs act has been an open question for all the pharmacologists. The answer by the Ayurvedic *Seers* is this. *Dravyas* can be divided into three broad groups, according to their specific action. Some *Dravyas* or drugs curb the over activity of *Doshas* or tissues (*Shamana*) some irritate them (*Prakopa*), whereas some promote the physiological functioning of the tissues (*Swasta krita*), (Charak Sutra Chapter 1). "It is not always very easy to explain exactly how the different drugs produce their pharmacological effects on the system. Although many attempts have been made to explain how the different drugs produce their effects still we are far from arriving at any satisfactory solution as to the real nature of the action of most of them" (Dr B N Ghosh Pharmacology, Materia Medica and Therapeutics, Part III). The following remarks of an eminent Pharmacologist are also noteworthy. "At the same time it must be recognised that we can only provide a partial explanation for a few of the simpler effects produced by drugs. Our present knowledge provides no explanation for the highly selective action which is the special characteristic of the most important drugs. Two drugs with very dissimilar chemical constitution, such as acetylcholine and pilocarpine may have very similar pharmacological actions. The limits of our present knowledge in this subject is indicated by the fact that in several cases drugs have been prepared for one purpose and have been found to produce valuable actions of a kind totally different from that sought. Still there have been attempts to explain the actions of drugs on more than one

hypothesis., Some drugs act by producing chemical changes, some by liberating chemical substances, some by altering the surface tension, whereas some act in a purely mechanical way. The tissues also have a say in this matter, for the action of a drug on any cell involves at least two separate processes, namely a chemical reaction and the biological response to that reaction."

We shall not wonder, therefore, if the Ayurvedic *Seers* give a cautious reply. According to their opinion, the pharmacological action—good or bad—of a drug is due either to its physico-chemical properties (*Guna*) or its taste or its *Veerya* (active principles) or its *Vipaka* (transformation as a result of digestive processes or its interaction with the cells and tissue fluids) or it may be a specific action—*Prabhava*. When all these factors are equally powerful, *Vipaka* is more powerful than *Rasa* (taste), the active principles are more powerful than *Rasa* and *Vipaka*. But all these are obscured by *Prabhava* or its specific action. (*Charak. Sutra. Cha.*, 26—*Sushruta, Sutra. Cha.* 40).

One should not conclude that there have been no difference of opinion regarding the actions of drugs among the Ayurvedic scholars. On every occasion they tried to decide the issue by observation on human beings. Animal experiments were unknown. On the contrary, in the veterinary branch of Ayurveda (*Pashu Chikitsa*) these very drugs have been used as therapeutic agents. But they were making experiments on animals only when poisoning of articles of diet was suspected, especially in the royal families. (*Sushruta. Kalpa.*, 3)

The Ayurvedic system has kept one ideal in view, which is similar to that of modern medicine, namely to prescribe such diet, and drugs as will restore the normal working of the body. It goes against the Homeopathy, so far as the principles of prescribing drugs are concerned, because it selects drugs and diets which have properties enemical to the causes of disease (*Viparita gunairdravyaih*). It has used freely from various sources and evolved a theory covering the actions of all of them, including diet.

After the *Samhitas*, we find a number of books (*Nighantus* and *Rasagranthas*) which describe the drugs and their actions in detail. The *Rasashastra* had a phenomenal rise and the preparations of mercury grew in thousands. Strange to say, ninety-nine percent of them are insoluble. This demands careful study at the hands of modern pharmacologists. We have written these lines to show that there is ample material for thought and

research in the Ayurvedic system. We are neither in favour of emotionalism nor reckless denunciation.

सत्यस्य द्रष्टा भुवि कोऽपि नाभूत् ।
 समाल्प बुद्धेः स्मरणं च क्षणिकम् ॥
 तस्मात्सतामत्र न दूषितानि ।
 मतानि तान्येष तु शोधितानि ॥ १ ॥
 पक्षपातो न मे प्राच्ये प्रतीच्ये नायहेलनः ।
 यद्यदालोचितं सत्यं तदत्र सन्निधेयितम् ॥ २ ॥
 विद्वांसो ये चतुर्वर्गाः प्राविता लाघुशर्मणा ।
 मिलिता पुण्य नगरे विद्यापुनित मानसाः ॥ ३ ॥
 पुष्पाणां मिश्रितानां धे तेषां विज्ञान धारिणा ।
 पाठकोपाद विप्रेण शुष्किना कुसुमावली ॥ ४ ॥
 चोपहृत् कुल जातस्य रामनाथस्य प्रेरणा ।
 ममोत्साहस्य सा मूलं त नमामि कृताञ्जलिः ॥ ५ ॥

APPENDIX B I (3)

CHARTER OF AGREEMENT SIGNED BY THE DELEGATES OF THE
 CONFERENCE OF VAIDYAS, DOCTORS AND SCIENTISTS CONVENED
 BY THE SCIENTIFIC MEMORANDA SUB COMMITTEE (AYUR
 VEDIC) OF THE GOVERNMENT OF INDIA COMMITTEE ON
 INDIGENOUS SYSTEMS OF MEDICINE HELD AT
 POONA FROM THE 15TH DECEMBER 1947 TO
 22ND DECEMBER 1947

'We, the members assembled here for the consideration of the following principles of Ayurveda viz, (1) Panchamahabhutha (2) Tridosha Siddhantha and (3) Rasa, Guna, Vrya Vipaka and Prabhava, have agreed unanimously to the conclusions arrived at after full deliberations and as stated in the enclosures attached

JAI HIND !!!

Poona,
 December 1947

Signatories

- 1 Dr P M Mehta, M.D.,
 Chief Medical Officer,
 Jamnagar
- 2 Kaviraj Upendra Nath Das,
 Secretary, All-India Ayurvedic Vidyapith,
 Delhi

1 Ayurvedic scholars, Darshanikas Scientists and Graduates of Modern
 Medicine
 2 Poona

3. Dr. Direndra Nath Bandhopadhyaya, M B., (Cal) M.D.,
(Berlin), Calcutta.
4. Shri Malladi Ramamurthi Shastri,
Narasapur.
5. Vaidya Purshottam Shastri Hirlekar,
Amroati.
6. Vaidya Ganesh Datt Saraswata, B A.,
General Secretary, All-India Ayurvedic Congress,
Delhi.
7. Dr. D V. Subba Reddy,
Professor of Physiology, Medical College,
Madras.
8. Vaidya D. A. Kulkarni, M A., M.Sc., Hindu 'Varsity,
Benares
9. Professor Balwant Singh, Hindu 'Varsity, Benares.
10. Dr. H. V. Savanur, L M S., Belgaum.
11. Vaidyapanchanan Gangadhar Shastri Gune,
Ahmednagar
12. Dr. M N Agashe, M.B.B.S., Satara.
13. Dr. C. Dwarakanath, L I M., z.T.,
Research Officer, Sri Jayachamarajendra-
Institute of Indian Medicine,
Bangalore
14. Vaidya B V. Gokhale, Principal,
Ayurvedic College, Poona
15. Dr. B C. Lagu, A.V.V., M.L.A.,
Convenor of the Conference and
Member, Government of India Committee on
Indigenous Systems of Medicine, Poona
16. Dr. B A. Pathak, M.B.B.S.
Principal, Ayurvedic College, Hindu 'Varsity,
Benares, and Member, Government of India Com-
mittee on Indigenous Systems of Medicine.
17. Dr. A. Lakshmipathi, B A., M.B. & C M.,
Bishagratna, Member, Government of India Com-
mittee on Indigenous Systems of Medicine,
Madras.

- 18 Vaidya Jadavji Tricumjee Acharya,
Member Government of India Committee on
Indigenous Systems of Medicine,
Bombay
- 19 Vaidya Jogendra Nath Darshan Shastri
Tarkadarshantirtha
Calcutta
- 20 Vaidya Jyotish Chandra Saraswati Delhi
- 21 Vaidya K. K. Parameswaran Pillay, Tiruvandrum
- 22 Pandit Badrinath Benares
- 23 Vaidya Rajeshwara Datta Shastri Benares

APPENDIX B I (4)

THE MEMORANDUM ON UNANI SYSTEM OF MEDICINE BY SCIENTIFIC
MEMORANDA SUB COMMITTEE (UNANI) OF THE GOVERNMENT
OF INDIA COMMITTEE ON INDIGENOUS SYSTEMS OF MEDICINE
COMPILED BY ITS CHAIRMAN & CONVENOR
DR SYED NIAMATHULLAH SAHEB

Memorandum by Scientific Memoranda Sub Committee, (Unani) Madras

FUNDAMENTAL PRINCIPLES OF THE UNANI SYSTEM OF MEDICINE

The fundamental principles of the Indigenous systems of Medicine namely Unani and Ayurveda are too well known to be repeated here in detail. They had been proved and explained on various occasions and their scientific nature proved to the various Committees and in replies to several questionnaire issued by the different Provincial Governments on this subject.

The scientific nature of any Medical Science can be proved only when it satisfies the data laid down for a system to be scientific or when it compares favourably with another system which is accepted as scientific. Any science that is based on principles and theories and satisfies arguments is scientific. We shall confine ourselves here to the Unani system of Medicine and shall prove that it is based on definite principles, has its own theories and satisfies all arguments, hence it is scientific.

Secondly a favourable comparison of the Unani Fibbi with the modern system of medicine which is acknowledged as scientific system of the day should make one convinced of the

equally scientific nature of this system also. A historical survey is necessary to establish its scientific nature.

Unani-Tib (the Grecian System) as its very name implies was founded by eminent men like Shaik Bu-Ali Sena (Avicenna), Aflatoon (Plato), Arastoo (Aristotle), Jalinoos (Galen), Ibn-a-Rushid, Rhazes etc., each one of them is too well known to the modern science. They are also the fathers of the modern system of medicine, which is also based on similar principles.

The principles of the Unani-Tibb, are wide and comprehensive and are capable of proving in their own line even the most advanced and upto-date theories, and discoveries of the times. The Germ theory, the theory of Vitamin, the Hormone theory, and in short, all other theories of the modern science have been satisfactorily explained and understood in terms of the Unani-Tibb; the principles of diagnosis and treatment are so comprehensive that even the most complicated diseases can be treated satisfactorily by this system.

A brief reference is made herein about "The Principles and theories of the Unani science," and for detailed study, reference is solicited to treatises on this subject—a huge treasure of which lies dormant in Arabic and Persian literature and also to some extent in the recent publications of translations in Urdu.

The essential constituents and the working principles of the body are classified into seven main groups and they are termed "Umoor-i-Thabayeya" as here under. (1) Arkan (2) Amzija (3) Akhlath (4) Aza (5) Arvah (6) Qhuva and (7) Affaal.

All of them are important and this order of enumeration bears a relative importance to the order of their actual manifestations in the working body, i.e., (1) the Arkan comprising the different states of matter and the materials getting into the composition of everything in the universe, (2) Amzija—the bodily temperaments, (3) Akhlath—the structural components, (4) Azaa—the fully grown organs (5) Rooh—the life spirit (6) Qhuva—the powers, and (7) Affaal—the functions.

There is great literature on each one of the above principles and a detailed study will convince one of its scientific nature. It is a science because it has its own theories based on well established principles.

Explaining briefly, it can be said that matter in its different states and forms of existence helped by the temperaments of

its individual constituents produces Akhlath, the structural components of the body. Their different components combine to produce the organs, and the Rooh—the life spirit. The organs with the spirit develop energies, the Qhuva which is made to manifest itself in Afsaal—the functions of the body. Thus, it will be seen that this classification embraces in it,

- (1) The Elementary constituents of the body (Arkan)
- (2) Physics and Chemistry (Temperament)
- (3) The Humours of the body (Akhlath)
- (4) Anatomy of the body (Aza)
- (5) Life (Rooh)
- (6) Energy (Qhuva)
- (7) Physiology (Afsaal ul Aza)

There cannot be any better classification than this and this classification being the same and in accordance with the accepted laws of science, it follows that, the system based on these principles is also scientific.

To know each one of them, a detailed study of the relevant subject has to be made from the treatise on each one of them by both ancient and modern authors. Here again, we have to emphasise that only literature in Arabic, Persian and Urdu can supply this material and any attempt, however laudable or patriotic from other points of view it may be, will not give the true results.

The above classification deals not only with the normal conditions of life or existence of each one of them but also deals with the abnormal states of existence and functions which constitutes disease. They are fully described in "Ilmul Amraz", or the knowledge of diseases.

This subject deals with the aetiology, pathology, signs and symptoms of the disease and also the methods of treatment.

A combined knowledge of the conditions of health and disease had lead the Tabib (Physician) to the enunciation of the principles of preventive medicine which deals categorically with the various sources of 'Chooth' (i.e.) infection, and lays down principles for their prevention.

It will not be out of place at this stage to mention certain points of comparison between the Unani and the Allopathic systems where there appears to be great and fundamental disparity e.g., after the invention of microscope, many diseases

have been attributed to various organisms, and every day we see many more such discoveries of several kinds of organism as causative agents of disease. Such diseases are described in Unani in the same manner as in the Modern Science, including the mode of infection, the effects of disease on various organs of the body, the pathological changes in disease, the signs and symptoms of disease, the complication that occurs during its course, and even in the principles of treatment except with the difference of nomenclature, e.g. take any one disease in allopathy, the causative organism is a definite virus which is seen under a microscope and is proved to be the cause of that particular disease. Its method of infection, or entry into the body, its effect on the tissues and their reaction to its toxins, the signs and symptoms that produce the pathological changes in various organs, all bear a similarity and are described alike in Unani, the only difference being that in one it is called 'Maadah' and in the other, a specific germ. It must be remembered that the mere presence of germ in the body does not constitute disease. It is the effect of the germ and their toxins produced on the tissues and the Akhlath of the body and the changes produced therefrom that constitute disease. The Unani system explains disease as being caused by an infective 'Maadah'. It (Maadah) acts on the various organs of the body and then produces the disease.

The scope of treatment in Allopathy is limited. It is confined to only certain drugs, vaccines, or according to the latest discovery, to the drugs of the sulpha group or penicillin. Unani includes in its broader outlook not only the modern discoveries in it but has a wider scope of leading to more discoveries of even greater importance. The principle of treatment is to treat the disease with the drugs of opposing qualities e.g. 'Haimertz' is treated with 'Barid' medicine and vice versa.

There are degrees prescribed to assess the quantum of the disease and there are similar methods to assess the quality of medicine. A research student can by the application of these methods assess values of potentiality and the action of everything in the universe. Making use of this knowledge with the assessed value of the disease one can have no difficulty in treating the most complicated cases, at the same time bearing in mind the fundamental principles that govern the treatment.

Causes of Disease

Causes of diseases in unani system are the same as in the allopathic system and there are corresponding views namely, for

each one of them e.g. internal and external causes corresponding to 'Asbab-e-Dakila' and 'Asbab-e-Karija'. Exciting and predisposing causes corresponding to Asbab-e-Wasil and Asbab-e-Mold, heredity corresponding to Tawarus, mechanical and physical causes to Asbab-e-Taffarr-u-khin and Asbab-e-Mizajia, chemical causes to Asbab-e-Sammiya, and indigenous causes to Asbab-e-Khiltia. Hence it will be seen that there is no cause of disease left unexplained in Unani and even the parasitic causes find place in Unani system though it may not in detail deal with individual parasites but has not left any disease caused by them unexplained. Hence so far, this portion of the knowledge is concerned, it cannot be denied that if one of them is scientific, the other should be equally so. Now coming to the method of diagnosis and treatment, let us point out that in Unani the symptoms are divided as (i) Alamath-e-Munzir, corresponding to precursory symptoms, (ii) Alamath-e-Zahirya, corresponding to direct or endopathic symptoms, (iii) Alamath-e-Shirkiya to sympathetic symptoms, (iv) Alamath-e-Mukhamiya corresponding to local symptoms, (v) Alamath-e-Badniya to constitutional symptoms, (vi) Alamath-e-Shakisia to subjective symptoms, (vii) Alamath-e-Tabeyia to objective symptoms or physical signs, (viii), Alamath-e-Mushakkbisa to pathognomic symptoms. Besides these there are many more types of symptoms which are found in Unani but have no place in allopathy.

Methods of Diagnosis

There is also a great similarity in the methods of the diagnosis in both the systems. The difference if any will be very slight e.g. (1) body heat is measured by thermometer in allopathy and the ancient practitioners were estimating the heat by pulse and palpation. A slight deviation of the true estimate is possible in both methods and both can also give a correct estimation. Pulse plays a very important role in diagnosis of diseases, which have not been developed in allopathic system because in the former, the hand of the physician is trained to understand and interpret the pulse and its relation to disease while the latter relies on its instruments for its diagnosis and (2) urine plays an important part in the diagnosis of diseases. It gives us many indications of the disorders in kidney and liver and in the organs of digestion and according to the special technical terms we are able to diagnose diseases and treat them accordingly. (3) faeces also helps in the diagnosis of certain diseases.

The diseases of internal organs are diagnosed by observation, palpation, percussion and the constitutional changes produced in

the body. Every disease in Unani is fully described with all its symptoms, points of differential diagnosis at every stage and with all its complication is also equally fully described. A detailed examination of a patient comprises in studying the man as a whole in light of the principles stated above. The tongue gives an indication of the condition of blood and the function of the organs of digestion. The lips, teeth, throat, the tonsils, have all indicative signs in them of various diseases of the body. The condition of the saliva, its quantity, viscosity and taste are all indicative of different conditions of health and disease. We gain information from the condition of thirst and hunger, pulse and respiration, expiratory and inspiratory changes, smell of breath, all aid in diagnosis. The condition of the hair, the colour of the skin, the eyes, the ears, the nose have all in their turn to be interpreted.

Excretions of the body, viz., urine, faeces, tears, pus, and sweat, their smell and consistancy, give various clues to diagnosis. Similarly, sleep, or sleeplessness, fear or grief, anger or happiness, are also indicative. Hence, here is nothing which is not taken into account in diagnosis of a case and in fact, the methods are so varied and many, that there is ample scope for research and progress. The allopathic system is only a over grown branch from a huge tree which has numerous other branches with great potentialities in the trunk, for similar development.

Principles of Treatment.

The modern system of treatment deals with two types of principle viz, (1) Empirical and (2) Rational. Similarly, Unani system has also a similar classification, with the only difference in their proportion to each other. In Unani, treatment is done through medicine, diet and air and by operations. The last is now discarded and forgotten. Treatment by medicine is one which is common in use. Dietetic treatment and climatic treatment are used in Unani, mostly on the preventive side, and also in the curative sphere.

Materia-medica and Pharmacology.

The success of the treatment rest on the knowledge of Materia-Medica (Ilmul Adviya). In Tibbe-Unani, it includes a wide range of materials which are found in nature or which are prepared with their combinations comprising of vegetable, animal and mineral substances and which are used in the treatment of diseases.

Ilmul Adviya was not much developed in ancient times. A great contribution to its knowledge was made by Arabs e.g., 'Havi e Kabir' of Mohd bin Ahmed bin Zakria Rhazes, 'Khanoon' of Shaik Bu Ali Seena (Avicenna), Minhajul Biyan of Yehya and Mohicetha o Azam of Mohd Azam Khan, are some of the books on the subject, each dealing categorically with thousands of drugs and their preparations.

According to Unani a medicine is that which acts on the human system by its *hysfiyath* (temperament) and *Asar i Zul khass* (special properties). There are four temperaments and each is subdivided into four degrees. Medicines of the 2nd and 3rd degree are commonly used in the treatment of disease, whereas those of the 4th degree need great care in their use and are classified as poisons. For purpose of classification, Ilmul Adviya (Materia Medica) is divided under several heads:

(1) *Knowledge of simple drugs*. This deals with their names, the place, time, and the manner of their procurement and preservation, their characteristic features and external properties, their chemical properties and actions and their effects on the systems.

(2) *Tarkeebul Adviya (Pharmacy)*. This deals with the preparations of medicines and is a very wide subject in itself. This, subdivided further into (a) *Tarkeebul-Adviya e Badee ha* Doctors, prescriptions and, (b) *Kharabadeena* a Mustanad official pharmacy.

(3) *Bayanul Adviya* (Therapeutic actions of drugs).

(4) *Ilmul Ilaj* (Therapeutics) comprising of all those principles employed in the treatment of diseases.

In Unani, drugs are classified (i) According to their temperament

(ii) According to their properties (external and internal)

(iii) According to their effects on the organ of the body, and

(iv) Specifics

There are methods laid down for estimating the temperament and the strength of drugs and to classify them into different groups. The compound medicines have different principles of classifications. The classifications according to properties is also wide. Suffice it here to mention, a few, to enable one to understand its basis, e.g., based on the external properties drugs are classified as *Dawai Kashe*, *Dawai Latif*, *Dawai Looabi*, *Dawai Jamid*, *Dawai Luzuj* etc., and basing on general actions, they are

classified as Davai-mumzij, Davai-mufatteh, Mulathif-Mohammir, Mukhrij-e-Reh Jazib-Mughalis, Mukhadir Mana-i-Ufoonath, Akkal Mullyan Mushil, etc., etc., and based on their effects on the organs of the body. The medicines are classified as those acting on the brain and nerves, lungs and organs of respiration, heart and circulatory system, kidneys and the urinary system, and other organs of excretion, digestive system (liver, glands, etc.), and specifics, in respect of certain disease like somal and sankhia in syphilis, ghandhak in kharish, etc.

A Unani physician while treating a disease, first resorts to simple drugs. He generally does not use compound medicines when he is able to treat the case with simple drugs alone. A compound is made for various reasons, viz., (1) as a corrective (2) to increase certain, and to decrease certain effects, (3) to accelerate the action of drugs and (4) to retard or accelerate absorption.

The various forms in which drugs are compounded and administered are Huboob (pills), Safoof (powder), Javarishath, (confections); Akhras (tablets), lozenges Muferehaths (tonics); Majoons, Khameras-Lauks (syrups), enemas, suppositories, pastes, plasters, poultices, oils, ointments and embrocations, inhalation, and fumigations, baths and fomentations, etc.

Thus it has been made clear that from all points of view, Unani Tib is based on Scientific Principles and also its knowledge of diseases, its explanations of their causes, the description of the signs and symptoms of disease. Its knowledge of drugs and therapeutics, preventive and curative aspects of treatment are all based on science and have also been explained in the language of the Modern Science.

There are ample opportunities for research in every branch of our system. If proper facilities and opportunities for research are afforded, there is no doubt, that contribution to the world knowledge of medicine from this source will be very great indeed.

The Unani system of medicine has its own methods of research peculiar to its science.

It must however be said that, there are points in Unani that the modern scientists and modern medical men cannot understand unless they accept the existence of the 'soul' and its influence on health and disease. Modern science has to advance further and change its views to understand the subtle principles of Unani.

APPENDIX B I (5)

A MEMORANDUM ON THE SYNTHESIS OF INDIAN AND WESTERN
 MEDICINE BY VAIDYARATNA CAPTAIN C SRINIVASAMURTI
 B A, B I, M B & C M PRESIDENT THE ACADEMY OF INDIAN
 MEDICINE (MADRAS) & (HIS PRINCIPAL GOVERNMENT
 SCHOOL OF INDIAN MEDICINE (MADRAS))

Synthesis

The Synthesis of Indian Medicine and Western Medicine into one unified and integrated whole is a practical necessity under present conditions in India, and it is also the most satisfactory way of increasing the usefulness of these systems to the public. There is no other way to follow, *Nanyah Pantha Ayanaya Vidyale*"

One of the terms of reference of our Committee is the consideration of the question *whether a synthesis can be made of three systems, Ayurveda, Unani Tibbi and Modern, into one all comprehensive system*. My answer to this question is emphatically in the affirmative based both on theoretical considerations and also on the practical results of an actual scheme that is being worked for the last two decades in the Presidency of Madras. I go further and say that such a synthesis is not only practicable but is also the most satisfactory and necessary measure if we are to pay due regard, as it is our duty to do, to another of our terms of reference which requires us to suggest the measures to be taken *'to increase the usefulness of the systems to the public as a part of a comprehensive plan'*

The proper approach to the question

In any consideration of the comprehensive system and plan envisaged in our terms of reference it is of vital and fundamental importance to define exactly the ends and objectives we have in view as also the means by which the desired ends and objectives are to be achieved. I suggest that the proper approach to the question should be as follows. Our people have the right to be provided with the ministrations of the best and the most satisfying Medical and Health Service that is available in the world today and that will become available from day to day as time passes on. The best and the most satisfying ministrations under present conditions in India is one which offers the excellences of both Indian Medicine which our people want and Western Medicine which they need. It is the duty of our Government and ourselves to adopt such measures as are best calculated to ensure that the necessary institutions, personnel, equipment etc.,

are adequately provided for, here and now, or as expeditiously as our circumstances permit. I consider that, for conditions in India, the best means to achieve the end in view is through the building up of one unified and integrated system of Medicine incorporating therein whatever is of proven value in the teachings and practices of both Indian and Western Medicines and not in working these systems as rivals contending for supremacy. Not in isolation much less in opposition, but in collaboration and co-operation is to be found the key to all round progress and increased knowledge with power to render more wide spread and efficient service. In this view, it is a great mistake—a fundamental mistake—to approach the question in the partisan manner that is frequently adopted and to approach it as though it was a contest between two contending parties in the legal suit “Indian Medicine *versus* Western Medicine”. Such an approach has resulted, as it was bound to do, in unhealthy rivalry and unscientific isolation and even blatant obscurantism. In the result, both Science and sick humanity have suffered. Our slogan, if one is needed, should be not “Indian Medicine *versus* Western Medicine,” but rather, “Indian Medicine *cum* Western Medicine”. Instead of pooling all our Medical resources for the common benefit of suffering humanity, we have been prone to exhibit the fierce antagonisms, bitternesses and other ugly features of religious fanaticism and to shout at each other and proclaim from house tops “Come to me and you are on the way to salvation. Go to him and you are on the way to damnation”. It is a matter for thankfulness that, in refreshing contrast to such an attitude, the inaugural proceedings of our Committee began with an eloquent plea for “pooling together things of value in both ancient and modern medicine and placing them at the service of suffering humanity”.

In deciding upon the best means to achieve the desired ends, it is wise to take due note of existing conditions and plan our future after a discerning consideration of the present and also of the past that has led up to the present. It is unwise to proceed as though we could afford to write upon a clean slate without any reference to the present or the past especially where the past is one of striking and outstanding achievements and the present is one of undemable and much appreciated service to large sections of the Public—especially in our rural areas.

The past and the present of Indian Medicine

In the palmy and progressive days of Ayurveda, the Fathers of Ayurvedic Medicine were the foremost exponents and all-

round practitioners of their times teaching and practising Ashtanga Chikitsa, "the eight divisioned therapy," comprehending medical, surgical and other branches included in the term "Ashtanga." To those who are apt to judge the past of Ayurveda by the conditions of the present lack of self sufficiency especially in the field of surgery a description of the striking achievements of the past even in the surgical lines as given in the *Encyclopaedia Britannica* (vol XXII—page 672 9th Edition) may serve as a useful corrective. History has recorded that medical students from all parts of the world came for post-graduate study to the Medical Faculty of some famous University in India, as the one at Taxilla or Nalanda. The field of activity of our Physicians and Professors of those days was not confined to India but extended from Persia and Arabia in the West to China and countries of Greater India in the East. Indian Professors and Practitioners of Ayurveda were then warmly welcomed by Royal Patrons in other countries. They practised under Royal Patronage and exchanged thoughts freely with practitioners of those countries. The treasures of Ayurveda were translated into the languages of other countries, Persian, Arabic, Chinese, etc., and a number of remedies of proven utility used by the Arabians, Persians and Chinese were incorporated into Ayurvedic Pharmacopoeia, but, due to various causes—political and others which need not be gone into here—this palmy and progressive period was followed by dark and decadent days for Indian Medicine as for many other branches of learning in India. State recognition and state patronage were withdrawn from Indian Medicine and transferred to the Western Medicine of our Rulers. This led to stagnation, obstructed progress, stunted growth and partial functioning from the effects of which Indian Medicine is still suffering, but, even under the severe handicaps it has been subjected to, it is Indian Medicine that is still ministering to large sections of our Public—especially the rural millions in whose hearts it still finds a place of grateful appreciation and abiding affection.

Furthermore, it has to be noted that the ministrations of Indian Medicine are sought after not only by the vast masses of our unlettered poor whose faith and preferences are rooted in Indian Medicine but also by well placed persons of light and learning in all walks of life including rich intellectuals who could well afford to obtain the services of Western Medicine if and when they want it as also by some practitioners of Western

Medicine itself in the treatment of some of their patients and of the members of their family including themselves :

It will thus be seen that the practical and survival value of Indian Medicine is decidedly high, as may be gathered from the fact that it is Indian Medicine that has ministered for millennia to the medical needs of the vast masses of our population and that even today and notwithstanding the very adverse conditions to which it has been subjected for over a century and a half it is Indian Medicine that ministers to about 80 to 90 percent of our teeming millions especially in rural areas whose faith affection and preferences are rooted in Indian Medicine while it is only 10 to 20 percent of the population living mostly in Urban Areas that are served by Western Medicine notwithstanding the fact that, for over a century and a half, it has enjoyed almost exclusive monopoly of State patronage, State support and State munificence Under these circumstances, it was a disservice to the cause of both science and suffering humanity that previous Governments should have ignored or discouraged an agency with such proven practical and survival value as that of Indian Medicine This mistake has now to be set right and that as quickly as possible

^{5 11} The Science and Art of Indian Medicine is part and parcel of our invaluable cultural heritage which should be zealously preserved, fostered and promoted at least in India and for the greater service to the cause of Science suffering humanity and the generations that are to come after us If it is ignored in India itself, where else could we expect it to be cherished as the Science and Art of such proven practical and cultural value deserves to be cherished ?

This plea for Indian Medicine does not of course mean that we could afford to ignore the invaluable benefits which Western Medicine has brought to the public To do so, would be against the interests of the Public as also against the precepts and practices taught by Charaka himself the great Father of Indian Medicine The position therefore is that for conditions in India, we need both Indian and Western Medicine neither of which could be neglected or accorded step motherly treatment without causing disservice to the cause of Scientific advancement as well as the suffering public

It is therefore urgently necessary to provide for the ministrations to the Public—to the masses as well as the classes—of both Indian Medicine and Western Medicine (There are two

ways of doing this. One way is to run parallel institutions of both systems working in water-tight compartments with all the attendant evils of unhealthy competition, unbecoming rivalry, unworthy bickerings and unscientific isolation and obscurantism. This way is also prohibitively and almost impossibly costly, for, each system would make persistent and insistent demands, on various plausible grounds for preferential treatment for itself in respect of Government grants opening of its own Dispensaries, Hospitals Schools Colleges etc. The Government cannot possibly meet the demands of all these rival systems if only on the ground of the colossal cost involved, but, if the demands are not met, there would be discontent, agitation and clamour against the Government by the followers of the disappointed system and its supporters among the public. The other and better way is to provide for the proper training of practitioners who could place at the service of the public the excellences of both Indian and Western Medicine. In the highest interests of both Science and suffering humanity such synthesis of Indian and Western medicine into a unified and integrated whole is the only and most satisfactory way, and for reasons stated above there is really no other alternative way to resort to '*Nanya Pantha Ayanaya Vidyate*,' if I may use a famous Upanishadic saying in this context.

It is along such lines as those noted above that the recommendations of the Madras Committee on the Indigenous Systems of Medicine were framed in their Report of 25 years ago, and as a first step for implementing the recommendations of the Committee, the Government School of Indian Medicine was established early in 1925, and two years later, the associated Hospitals were added. I give below a brief note on the history and progress of the Madras Scheme as they may serve to indicate the lines which may be followed in our future plans as also those which are to be avoided.

The Madras Scheme

It was towards the end of 1921 that at the instance of the late Raja of Panagal, then Chief Minister in charge of Public Health, the Government of Madras appointed a Committee under the Chairmanship of Mr (now Sir) Muhammad Usman Sahib Bahadur, 'to report on the question of the recognition and encouragement of the indigenous systems of medicine in vogue in this Presidency. One of the difficult questions which the Committee had to consider was what was spoken of then (and even

now, by some) as "the problem of rival systems"—the Indian and the Allopathic *.

There were some who saw nothing good in Indian Medicine; and their solution was to end it. In their view, Allopathic Practitioners could certainly not have anything to do with what was deemed by them to be something which is unscientific in theory, and quackery in practice. On the other hand, there were exponents of Indian Medicine who saw nothing good in anything else; their system was quite perfect and there was no need to look at any other.....Fortunately, for the cause of science and suffering humanity proposals for continued isolation and stagnation did not prevail. If such proposals had prevailed, the purpose of Schools of Indian Medicine would have been, not to restore to Indian Medicine the high status it had in the palmy and progressive days of its past, when its professors provided all-round training in all the "eight branches" (*ashtanga*) of medical practice, including the practice of surgery and obstetrics, and exchanged thoughts with the learned doctors of other lands, from China to Arabia, to the end that the knowledge of each may be continuously brought up-to-date with whatever was new and valuable in the teaching of others, but to perpetuate the sad plight of its dark and decadent days, when its practice on the

* In regard to the use of the term "Allopathy" and Allopathic Medicine, I am aware that, for sometime past, some practitioners of Allopathic Medicine have been wanting to change the present appellation as though there was something in the name of 'Allopathic Medicine' which they were dissatisfied with or did not like. Some letters relating to this change have also appeared recently in the local Press, but the name "Allopathic Medicine" is one sanctioned by statutes. Section 13 (b) of the Madras Medical Registration Act of 1914 speaks of "the Allopathic or any other system of Medicine". So too, the term "Allopathic Medicine, Obstetrics and Surgery" appears in section (2) of the Indian Medical Degrees Act 1916 under the term "Western Medical Science". Those Allopathic practitioners who wish to see that the term "Allopathic" is not applied to their system should take up this question with the appropriate legislators for necessary amendment, but, in doing so they should not seek to arrogate to themselves, as some of them are trying to do, the sole monopoly of the term "The Scientific Medicine" calculated to mislead the Public to the totally untrue and unjust suggestion that Allopathic Medicine alone was scientific and others like Indian Medicine were not. We know that some want to liquidate Indian Medicine altogether, but, it would be unfair to seek to achieve this objective by the easy method of giving Indian Medicine a bad name. I should strongly protest against the move to secure for Allopathic Medicine the sole right of being described as 'the Scientific Medicine' when Indian Medicine has atleast as good a title, if not a better one, for the description "Scientific Medicine". If some Allopathists want the name of their system changed, then the proper appellation for "Allopathic Medicine" would be "Western Medicine" or "Western Medical Science"—a term used in the medical Degrees Act, 1916. "Western Medicine" and "Indian Medicine" would then serve to indicate the countries of their origin and practice without any implication regarding the scientific nature or otherwise of their content. Some have proposed the term 'Modern Medicine' but, what is modern today ceases to be so by the mere passage of time. Hence, the term "Modern Medicine" does not seem appropriate to designate the system as it is today and as it will be tomorrow. The term 'Modern' may be appropriate only for what is known and practiced at the present time and not for what may become known and practiced in the future.

surgical and obstetrical side had almost ceased, and its medical practice suffered from stagnation and isolation. After a thorough and extensive investigation of these and other related questions, the Usman Committee came to the considered conclusion that, from the standpoint of science and theory, the Indian systems were thoroughly scientific and logical while from the standpoint of art and practice they were generally self sufficient, efficient and economical in the medical line while they were not so in the surgical. While paying their tribute to the general efficiency, suitability and popularity of Indian Medicine for providing relief in medical cases and while recognizing to the full the potentialities of Indian Medicine for contributing in the future as in the past, its own quota to the sum total of human knowledge for promoting health and diminishing ill health, they proceeded to observe as follows:

"It seems to us that the first and foremost problem that we have to address ourselves is to see how we can make the Indian Systems of Medicine rapidly self sufficient and efficient, for, unless and until this is secured the problem of bringing adequate medical relief within the easy reach of our masses especially in the rural areas, will not become satisfactorily solved. Moreover, the establishment of institutions of Indian systems will under these circumstances remain a proposition of only limited applicability, because it would involve the maintenance of *a double set of institutions one the Indian, to look after our medical ailments, and the other the European to look after our surgical needs—an arrangement as uneconomical as it is unsatisfactory*. Some such arrangement may, however, become inevitable in the transitional stage, but this period should be as short as possible. We, therefore, consider, that the most urgent and immediate concern for the State is to establish and promote by State aid State recognition and such other means the establishment of suitable centres of medical education and the devising of suitable scheme of studies of Indian Medicine calculated to make those trained under it equal to the task of ministering not only to our medical needs, as at present, but to our surgical ailments as well. Every scheme of study of Indian Medicine whether Ayurveda, Siddha or Unani should make adequate provision, for not only the efficient training in subjects appropriate to itself but also for the training of the essentials of whatever is valuable in Western Medicine.

'Consistently with this view we would like to see the future practitioners of India no matter what denomination they belong to—Ayurveda Siddha Unani European medicine or any other

being so schooled and trained, as to be able to bring to bear on the problem of health and ill-health, not only the expert knowledge of their systems, but, as far as practicable the best that is in other systems also."

It is to implement the above recommendations of the Usman Committee that the Government School of Indian Medicine at Madras was founded, and began functioning on 6th January 1925, with a scheme of studies so devised as to achieve the purpose, the committee had in view, and "provide such training to its alumni as will enable them to become competent practitioners of Indian systems of Medicine with a good working knowledge of the Western system also."

Since then, many hundreds of Licentiates (L.I.M's) have graduated from the School and settled down for practice mostly in Rural areas or as Medical Officers in institutions under Government or Local Bodies or as Rural Medical Practitioners of subsidised dispensaries in posts previously open only to M.B's., L.M.P's., and other qualified Allopathic Practitioners. Notwithstanding the discouraging and step-motherly attitude accorded to them by Government in regard to their status, salaries, prospects and opportunities in Public service they have acquitted themselves in a manner that does great credit to them, ministering Medical relief to the vast masses that yearn for Indian Medicine as well as for the smaller percentage that want or need the ministrations of Western Medicine. Some years ago, a few batches of the L.I.M's underwent training in Public Health work along with L.M.P's and other, Allopathic practitioners, passed the qualifying tests and carried on Public Health work in addition to their duties relating to Medical relief. These and other L.I.M's have gone to out-of-the-way places and jungle tracts, giving anti-cholera and other preventive inoculations and generally carrying on preventive and epidemic duties whenever called upon to do so. The records of their work both in the Medical and Surgical lines are found in the Annual Reports and Statistical statements published by the Government. Their work in all these directions has stood the test of periodical inspections by Allopathic District Medical Officers or their assistants, some of whom have openly expressed their antipathy for what L.I.M's stand for, while the generality have no special sympathy for them. Judged by the results of even such official inspection and the much-appreciated service rendered by them to the public in Medical & Public Health work, the Madras Scheme has been a success as far as it has gone; and is well-worthy of study by

persons entrusted with the duty of planning the future of Medical and Public Health work for India—more especially because the success achieved has been obtained under the distressingly grudging and step-motherly conditions it has suffered from at every step of its progress. This makes us hope confidently for far greater success if the existing handicaps are all removed and the step-motherly attitude replaced by the fostering care of a real mother which let us hope and pray will be the role of the new popular Governments of our Free and Independent India.

I have stated above, that for conditions in India, it is urgently necessary to build up a unified and integrated system of Medicine by a synthesis of both Indian and Western Medicine. It will take some years to prepare suitable Text books incorporating the excellences of both Indian and Western Medicine and provide for other conditions necessary for the desired scientific synthesis to be fully achieved. Meantime, much may be done by way of transitory arrangements. Judging by the success of the Madras scheme for training competent practitioners of Indian Medicine with a good working knowledge of Western Medicine, I have frequently pleaded and now plead again that provision should be made for imparting a working knowledge of Indian Medicine in our existing Allopathic Medical Colleges and for imparting a working knowledge of Western Medicine in our existing Colleges of Indian Medicine. This is certain to lead by easy steps and natural fusion to the building up of the unified and integrated system of Medical synthesis we have in view. In other words, our ultimate objective of achieving this synthesis of Indian and Western Medicine into one unified and integrated whole is to be brought about by transitional arrangements through two types of institutions both of which are to provide training in both Indian and Western Medicine but with emphasis on Indian Medicine in the one case and on Western Medicine in the other. Indian Medicine will be the main subject in one case with Western Medicine as the subsidiary subject and vice versa.

Objections against Synthesis answered

Objections raised against the unified and integrated scheme of Medical Education and practice (the objective of schemes like the one operating at the Government School and College of Indian Medicine at Madras) have centred mainly around two questions namely —

- (1) It is not possible to work with the differing basic theories of both Indian and Western Medicine without causing mental confusion, and,

- (2) Even if such working is considered feasible it is not possible to find time in the five to six years of Medical study at our Medical Colleges for the integrated study of both Indian and Western Medicine leading ultimately to Synthesis of both into one unified system

So far as I am concerned, these objections raised now by some witnesses before our Committee are not really new. They were raised here at Madras a few years ago with a view to persuade the authorities to give up their scheme towards the Synthesis followed at the Government School of Indian Medicine Madras. It then became my duty to answer the objections raised and the scheme towards Synthesis was allowed to continue. Now that it has again become my duty to consider the same objections I cannot do better than give below the same answers that I furnished then as I consider that they remain valid even now.

Objection No 1—It is not possible to work with differing basic theories of both Indian and Western Medicine without causing Mental confusion

Answer—Practical experience as well as theoretical considerations show that the scheme for achieving synthesis has worked successfully in actual medical practice and is also in accord with sound scientific principles.

Over a thousand practitioners have now qualified from an institution in Madras (namely the Government School of Indian Medicine) where the scheme for achieving synthesis has been in operation for some years past. They have settled down in private practice or been employed as Medical Officers under Government or local Bodies. Thousands upon thousands of individual problems have been dealt with by them in the course of their professional work during these many years without any report of mental confusion being caused. It will therefore be seen that judged by results *the scheme for Synthesis in Medical teaching and practice has worked satisfactorily in practice*, and this after all is the strongest evidence one could have. A tree is best judged by its fruits. Under the circumstances, the fear of mental confusion is merely a hypothetical bogey over which some people have needlessly distressed themselves. Two theories may be different, but need not, on that account, be contradictory. On

the contrary, different theories may be complementary and serve to explain the unexplained features of one another. Further, the teaching of different and even apparently contradictory theories is inevitable in the present state of our knowledge of different sciences—whether we are votaries of a mainly experimental Science like Physics or of an “exact” Science like Geometry or an imperfect Science like Medicine. Everywhere, we have to accept different and even apparently contradictory theories and try to reconcile and harmonise them as best as we could. As the great Mathematician and Physicist Prof Bohr reminded us in his stimulating Article on ‘Light and life’ contributed to “Nature,” we have to accept the theory of of Electro Magnetic Waves to explain certain Phenomena of light and also the theory of light Quanta, to explain certain other phenomena. Each theory is helpful in explaining certain phenomena but neither is sufficient to explain all phenomena, hence, in practice, it was inevitable that, on a Monday, while dealing with certain phenomena of Light I had to proceed on the basis of wave theory and assume that I was dealing with electromagnetic waves, while on Tuesday, working with certain other phenomena, I had to proceed on the theory of light quanta and assume that I was dealing with material particles or corpuscles—the discarded Newtonian corpuscle re incarnated in a new form. We have also tried to harmonise the two apparently contradictory theories on the basis of “Waveicle” (both waves and particles) and other assumptions. Similar is the difficulty regarding Modern Theories of Matter—the very foundation on which basic sciences like Physics as well as applied Sciences like Medicine are built. In reviewing a publication entitled “Matter and Light the New Physics” by Louis De Broglie translated by W H Johnston, the distinguished Scientist Prof Herbert Dingle stated as follows: “The central theme of the book is the appearance of the concepts of waves and corpuscles in physical theory. Newton thought of Light as crowds of corpuscles, but his views were long ago discarded in favour of wave theory. Matter, on the other hand has in modern times always been regarded as composed of corpuscles, of which electrons and similar entities are at present the ultimate representatives. The reasons for these views were that they explained experiments: neither waves of light nor electrons had been, or indeed could be observed directly. More recent experiments, however, appear inconsistent with such explanation: they seem to demand that light should be corpus

cular, and that matter would be ultimately wave-like. Thus there arises an incompatibility in the theories of both light and matter. Each behaves in some experiments as though it were a wave, and in others as though it were a corpuscle, and the problem is to form a conception of it which will explain both sets of experiments. There is a further difficulty. A wave demands a medium in which to manifest itself. The luminiferous ether, in spite of certain contradictory properties, supplied this need for light, more or less satisfactorily, until the theory of relativity appeared; but thereafter it could be maintained only if one ceased to demand that it could even conceivably be a standard of reference with respect to which a body could be said to move: and this is justifiably regarded by most physicists as equivalent to a denial of its reality. The medium in which material waves exist is, if possible, still more inapprehensible. Hence, with regard to both light and matter, we appear to be forced to accept incompatible conceptions, one of which is also impossible to realise."

Similar is the case with even an "exact" science like Geometry. While engaged on problems to which Euclidian Geometry is applicable, I may assume that three angles of a triangle are equal to two right angles and that parallel lines never meet; but I may have to discard these 'axiomatic' truths the very next day while engaged in surveying Non-Euclidian spaces to which Euclidian Geometry is not applicable. Similar is the case in Medicine. It is commonly understood that treatment by "Similars" is Homeopathy while treatment by 'Dissimilars' is Allopathy, but, vaccine-therapy so much in use in modern medicine in both preventive and curative Medicine is treatment by 'Similars' and in that sense, 'Homeopathy.' The two principles may appear contradictory, but be capable of being reconciled and harmonised. These instances from the different sciences are only illustrative. They could easily be multiplied and instances taken from other sciences also.

So far as the question of differing basic theories in Medicine is concerned, it is not clear what particular theories of Modern and Ayurvedic medicine are meant when the question about the fear of Mental confusion is raised. I am aware of the criticism and the objection that Ayurveda teaches the "Humoral" theory — sometimes referred to as the "discarded" humoral theory; but, as different people seem to mean different things when they speak of "humoral" theory, it is difficult to know what particular theory is meant. Frequently, it is referred to as the theory

which is opposed to the modern "cellular" theory. If this is what is meant is it really possible to discard the humoral theory? Is it not the case that the very advances of Modern Medicine—especially in the field of Endocrinology and Immunology—have served to place "Humoral Theory" on a firmer footing and to lead to attempts at the reconciliation and harmonising of cellular and humoral theories which were held to be antagonistic to each other till quite recently. The following extract from the latest available edition (this refers to a date in 1940 when this part of the note was first written) of "Green's Pathology" (page 168 and 169) may serve as an authoritative comment on the conflict between the cellular and humoral theories.

"In the early studies of the defence of the body against infection the active part played by the body-tissues was soon recognised and almost immediately, two hostile schools came into existence. One, led by Metchnikoff and his co-workers, attributed the phenomena of immunity entirely to the activity of the body cells, and especially of the Leucocytes. The other, including Nuttall, Buchner, Plugge, and many others held that increased resistance depended upon specific properties acquired by the body fluids, and especially by the blood serum. Thus were found the 'Cellular' and 'Humoral' doctrines of immunity, which were for long antagonistic, it is only within recent years, and, especially since the increase in our knowledge of the phenomenon of Phagocytosis, that the two theories have been harmonised.

The so-called 'conflict' of theories observed in the above noted illustrative examples from sciences in general as well as from Medicine has not led to mental confusion among its votaries. On the contrary, the continued study, side by side of the "conflicting theories" and the continued observations and experiments related thereto have been leading to the reconciliation and harmonising of "antagonistic theories".

It is therefore seen that, both on theoretical and practical considerations, the path of Scientific progress and wisdom lies in building on the basis of schemes providing for a unified and integrated system of Medical Education such as that provided at the Government School of Indian Medicine at Madras. *When properly taught by competent teachers to competent students, it has not led and is not likely to lead to mental confusion. On the contrary it is the royal road to that reconciliation and harmonising of apparently conflicting theories which it should be our aim and endeavour to achieve.*

nine years later, (1933—34) I read the report of a very influential, and authoritative committee on Medical education appointed by the British Medical Association which recommended among other things, the elimination of wastage which, nine years earlier, I had tried to avoid at the Government School, I need hardly say that it gave me great relief and satisfaction; for, it is no small thing for a person in the comparatively humble position of myself to find that a reform introduced by me, nine years earlier, was essentially on sound lines according to the recommendations of so authoritative a body as the committee on Medical Education appointed by the British Medical Council. This was what I stated nine years ago. Now, again, it is no small satisfaction to me to find that the expert findings now recorded in the report of the Bhore Committee also justify the view I took nearly twenty-three years ago. May I illustrate this point by reference to the Committee's remarks relating to the study of anatomy as it is still pursued in our Allopathic medical schools and colleges? In my note of nine years ago I quoted authorities like Mr. Souttar who said that nine tenths of the dissections were an absolute waste of time and Dr. Wilkie-Miller who said it was wholly unnecessary for the student to acquire such an amount of detail in anatomy, physiology, and bacteriology as was at present the case. Now we find the following finding on page 159, Volume I of the Report of The Bhore Committee: "As regards anatomy a disproportionately large amount of the total period devoted to the medical course appears to be spent in this country on the teaching of this subject as compared with the practice in countries in which medical education is on more progressive lines. For instance, in King Edward's Medical College, Lahore, the subject appropriates to itself one thousand two hundred and seventyfour hours, out of a total of four thousand and five hundred and forty-six for the entire medical curriculum and in the Andhra University, one thousand, one hundred and twentyfour hours out of four thousand, one hundred and fifty-eight. At Harvard, on the other hand, the corresponding periods are four hundred and eighty hours out of four thousand, and in Russia, four hundred and thirty-eight out of five thousand, seven hundred and sixty hours. It is believed that the time taken up by lectures and demonstrations and by the dissections can be curtailed to an appreciable extent." On page 349 of Volume II of the Report, the following statement appears in a Minute signed by six members of the Committee (Sir Frederick James, Dr. Viswanath, The Hon. Mr. P. N. Sapru, Mr. M. N. Joshi, Pandit L.K. Maistra, and Dr. A. H. Butt); "Several distinguished

medical officers have now, during our discussions, expressed the opinion that *by a suitable modification in the curriculum, 'an effective medical training' can be given in three and a half years, including a six months' internship*' (or 'reduction of the course to three years' followed by internship of six months' as stated in another note signed by the two doctor members of the Committee, Dr. Viswanath and Dr. Butt).

It will therefore be seen that, by a suitable modification in the curriculum time could be found in four years' scheme of studies for an effective medical training, which could provide, even now, for a working knowledge of Western Medicine in our schools and colleges of Indian Medicine and a working knowledge of Indian Medicine in our schools and colleges of Western Medicine. This would lead ultimately by easy steps to the synthesis of both into one unified and integrated system that we have in view.

Provision for imparting training in Indian Medicine to selected practitioners of Western Medicine and vice-versa. This would be one of the most desirable and effective ways of finding the workers necessary for achieving synthesis as smoothly, harmoniously and quickly as possible. If they are brought together to work side by side in one and the same institution and for the achievement of their one common end viz., the synthesis of Indian and Western Medicine into one united and integrated whole, we may reasonably expect that, in the course of a few years, the desired synthesis would be achieved automatically as the natural fulfillment and fruition of their common purpose and endeavours.

Our greatest desideratum in the immediate present is a sufficiently large number of teachers who will so train their students at the Institutions of Indian Medicine that the alumni may become wholly self-sufficient and fully efficient in every way and not defective along the surgical line as is the case with the bulk of practitioners of Indian Medicine of the present day. To secure this end, we require the help of a number of Western-trained doctors who are willing to equip themselves to this truly ennobling task. When once we succeed in efficiently training some batches of selected students, they may then be trusted to carry on the tradition and even improve upon it, according to their own genius; in the meantime it is the unique privilege and the glorious opportunity for the Western trained doctors, if they have the imagination to see it, to re-start the followers of Indian

Medicine along the lines of their own forgotten surgical art; it is not every Western trained doctor that is fitted to this task of regeneration which demands the highest qualities of both head and heart. It is not enough for him to be an expert in his own line that of course is necessary but it is but a part of his equipment. He must in addition have a profound faith in the immense possibilities of Indian Medicine and a clear grasp of its essential teachings so as to enable him as far as possible to present to his students whatever is worth knowing in modern Western Medicine as so many natural corollaries of their own fundamental propositions and not as alien innovations destructive of their own tested teachings and practices. He must have learnt enough of Indian Medicine as to be filled with the robust faith that Indian Medicine has a message of its own to give to the Medical world of to day and tomorrow. He should have freed himself from all notions of any fundamental superiority or supercilious patronage and be filled with a genuine desire to learn as well as to teach and to move among practitioners of Indian Medicine as brother among brothers and equal among equals. More than all he must enter on his duties with a faith whose sincerity no ridicule can shake a zeal whose edge no obstacle can dull and an enthusiasm which no disappointment can cool. Now there are two ways of recruiting into our service the sort of teachers that we have in view. The one is to select promising graduates of Western Medicine, with a good knowledge of Sanskrit, Tamil or Arabic and depute them for a period of two or three years to learn Indian Medicine on condition that, on the completion of their course they will devote themselves for service at our Colleges and Schools of Indian Medicine. It may be difficult at first to get candidates with all the qualities of head and heart that we have indicated above but we must be content to choose the best that are available and while we may see to it that as far as possible we select only such as are actuated more by the spirit of service and dedication to an ideal than by mere monetary considerations still we must not expect too much from poor human nature but make the Cadre attractive enough for some at least of our best and promising intellectuals. The selected graduates may first be recruited as permanent members of our State Medical Organisation on the pay and prospects of the officers of the State Medical Service and then deputed to study at the expense of the State. Similarly, selected graduates of Indian Medicine may be recruited and given the required training in Western Medicine.

While I was the principal of the Government School of Indian Medicine, I did institute schemes of study for both types of training noted above; but, the prospects for those who took these courses were so poor that the schemes could not become popular and the expected progress could not be made because of the grudging support and step-motherly attitude towards Indian Medicine shown by persons directing the Medical policy of the State. To this, I shall have to refer presently at some length, if only to ensure that such things shall not be permitted to continue in our new set-up.

In the meanwhile, it would be a very wholesome rule if everyone seeking to practice Medicine in India is required to equip himself with a working knowledge of Indian medicine, no matter what his other medical qualifications may be. If it is found desirable and necessary that every civil servant recruited for service in India should be required to make himself acquainted with the mother-tongue of the people among whom he is posted for duty, it cannot be less necessary for every allopathic practitioner seeking to practise in India to be required to make himself conversant with a working knowledge of Indian Medicine to which it is calculated nearly 80 to 90 per cent of our population resort for relief. The Government of Madras have already instituted post-graduate courses for study in Indian Medicine, extending over a period of two years and open to fully qualified practitioners of Allopathic Medicine. Other Governments may follow on the same lines. I would also urge upon them the desirability of having at least one practitioner qualified in Indian Medicine on the staff of every headquarter hospital and other hospitals where there is provision for appointing more than one medical officer. If necessary, the medical officers already in service may be deputed by turns to undertake a course of training in Indian Medicine.

Pooling the resources of both Indian and Western Medicine to provide for the betterment of both and their synthesis into one unified and integrated Systems: One of the best and most fruitful ways in which Medical Education, Medical Relief and Medical Research in both Indian and Western Medicine could be better fostered and promoted is by pooling the resources of the existing institutions of both Indian and Western Medicine. In Madras, Bombay, Trivandrum, Bangalore, Mysore, Cochin, Poona, Calcutta, Lucknow, Delhi and many other places in India, there are Schools and Hospitals of Indian and Western Medicine which are working separately, and with no professional contact with each other. If, however, we

could provide for the staff and other resources of the Allopathic institutions to be made available for the purpose of giving a working knowledge of Western Medicine to the students of the Schools and Colleges of Indian Medicine while the Staff and resources of the Institutions of Indian Medicine, are likewise made available for giving a working knowledge of Indian Medicine to students of the Schools and Colleges of Western Medicine it would provide the quickest, the most economical and fruitful way of achieving our long range and ultimate objective of building up a unified and integrated synthesis of Indian and Western Medicine through the short range transitional arrangements of imparting a working knowledge of Western Medicine to students of Indian Medicine and *vice versa*. It would mean considerable saving over avoidable duplication of Staff Equipment, Dissection Halls, Laboratories etc., and it would provide for that close collaboration and cooperation between practitioners of both Indian and Western Medicine which would lead to the rubbing off of their angularities and mutual appreciation among the practitioners of both the collaborating groups—a consummation devoutly to be wished for, in the highest interests of both the Science of Medicine as well as of the public who could thereby be ensured of the ministrations of the best that is available in both Indian and Western Medicine in the matter of obtaining relief for their sickness and suffering.

Medical Research

The scheme for collaboration and co operation outlined above is of great value and significance for promoting not only Medical Education and Medical Relief but also Medical Research as well. For instance, let us consider here the case of Clinical Research. For evaluating the reputed values of the recipes and methods of treatment followed in Indian Medicine, it will be necessary to gather clinical data on a sufficiently large scale and check up results. While the actual treatment will be the responsibility of practitioners of Indian Medicine concerned, specially selected allopathists (qualified in Indian Medicine also if available) will have to serve as Medical Registrars and maintain careful records of the day to day treatment, progress and all other necessary data required for reaching a Scientific conclusion on the merits of the treatments adopted.

For this purpose, it would be necessary to be sure of the exact diagnosis in terms of both Indian and Western Medicine to record in detail the exact condition of the patient when he comes in and to keep careful records thereafter of the dietetic and

medicinal treatment adopted from day-to-day and the changes observed in the patient from time to time. The findings and inferences of microscopical examinations, X-ray investigations, electrical reactions, chemical, bio-chemical and other laboratory tests (including serological investigations) will have to be recorded as and when indicated. The adoption of these and other methods implying a close collaboration between workers in the field of Indian and Western Medicine will be necessary if scientific judgment acceptable to the Medical world at large is to be pronounced on the reputed values of the therapeutic measures advocated in the texts and traditions of Indian Medicine. The most economical and efficient way in which clinical Research as described above could best be carried on is by providing for the Laboratory X-ray, bio-chemical and other resources of the Government Allopathic Colleges, Schools and associated Hospitals and Research institutes (where they exist) being made freely available to workers of Research sections at Institutions of Indian Medicine where the actual treatment—Medicinal, Dietic and others would be carried on by Professors and Practitioners of Indian Medicine specially selected for the purpose.

In many cases, it should be possible, at a comparatively small cost to convert the existing institutions—particularly the well-equipped Allopathic institutions at our Metropolitan and District Headquarters stations into combined institutes where provision could be made at once for Medical Education and Medical Relief and Medical Research we have in view viz, (1) Medical Education which would lead us to the long-range objective of a unified and integrated system through the immediate and short-range objective of providing for Medical Education of two types, in both of which, training is given in both Indian and Western Medicine but with emphasis on Indian Medicine as the main branch in one case with Western Medicine as the subsidiary branch, while on the other, the emphasis would be on Western Medicine as the main branch with Indian Medicine as the subsidiary one; (2) Medical Relief through both Indian and Western Medicine working side by side, in the same institution so that the preferences and needs of both the masses and the classes can be met to their entire satisfaction and they are assured that, as far as possible, the excellences of both Indian and Western Medicine will be available at all times according to the needs and requirements of the individual patient seeking relief and (3) Medical Research—Specially Clinical Research—where the essential requisite for achieving the most satisfactory

results is the close collaboration and the willing (and even enthusiastic) co operation between competent practitioners of both Indian and Western Medicine which should be forthcoming in an abundant measure in the combined institutes we have in view

Objections on many grounds—administrative, temperamental and the like—could easily be raised against the scheme outlined above as indeed to any other scheme for bringing Indian and Western Medicine into close collaboration and co operation with a view to achieve, as rapidly as possible the building up of that unified and integrated synthesis which is very necessary in the highest interests of the Public Our people want Indian Medicine and we *must* give it to them Our people need Western Medicine also, and we *must* give that also to them Synthesis of both into one integrated system is therefore an urgent practical necessity—inevitable and inescapable—and there is no other way, as has been shown earlier Given a certain amount and type of cleverness, it is easy in fact, nothing is easier than to raise a hundred and one objections against any scheme if we do not like it or do not like to work it If, however, there is a will to work it, there is a way and not even a thousand and one objections shall stand in the way If our Government could declare that, in their view, it is in the highest interests of our Public that such synthesis (*which it is their policy to promote*) should be achieved as satisfactorily and as rapidly as possible and that, in pursuance of this view and policy, they expect their officers of all grades to co operate fully and do all in their power to “*get on with the work or get out,*” things are certain to move most satisfactorily towards the rapid achievement of our objective

It is not that I am inclined to minimise the administrative and other difficulties that may arise A certain amount of friction and other troubles may perhaps be inevitable but not insoluble, they can and must be met as they arise and it does no good to unduly distress ourselves over all possible difficulties known and unknown, nor is it always possible to think out beforehand all difficulties that may arise in the future and make due provision for them As practical workers we cannot afford to spend ourselves in pondering over all conceivable difficulties and ‘by fearing to attempt, lose the good we oft might win’ Many and many a time in history have problems which have remained insoluble to our doubting Hamlets and Academical perfectionists become readily solved when taken up by our practical enthusiasts who meant business and were determined to dare and to achieve Such are exactly the ‘persons’ that are required for

our present purpose—persons, who can become men with a noble ideal and moved to high endeavour by an uplifting idea. The supreme need of the hour is not so much a matter of money as men—men who couple enthusiasm for ideals with the capacity required for translating them into practical achievement.

APPEDIX B-I (6)

SYNTHESIS OF THE INDIGENOUS AND WESTERN SYSTEMS OF
MEDICINE—A REPORT TO THE INDIGENOUS SYSTEMS
INQUIRY COMMITTEE, GOVT. OF INDIA BY LT.-COL.
M. H. SHAH, CHIEF MEDICAL OFFICER, JINNAH
CENTRAL HOSPITAL, KARACHI.

In India and Pakistan the incidence of preventable sickness and mortality is much higher than in any country of the West. Though this is chiefly the result of poor social and economic conditions of the masses the number of doctors available to deal with this problem is also markedly deficient. It was estimated by the Bhore Committee that in British India there were only 16 doctors per 10,000 of population as against 13 in the U.S.A. and of this number, 75 per cent were concentrated in the urban areas. It is, therefore, clear that in these Dominions, facilities for the modern diagnosis and treatment of disease are but extremely scarce.

In order to deal with this problem the Health Survey and Development Committee which had been appointed by the late Government of India under the Chairmanship of Sir Joseph Bhore recommended the adoption of a 25 years plan of organising scientific health services for the country. The cost of this plan is, however, so disproportionately great for a poor country like India and the chances of university trained doctors settling down in the villages are so remote that many have doubted the wisdom of accepting these recommendations. It had been felt by many of the intelligentsia that the indigenous systems of medicine which since ancient times have been catering for the rich and poor alike should be given proper help and support in order that they might play a more active part in the health services of the country.

At a conference of the Health Ministers held in New Delhi on 10th October, 1946, it was therefore resolved that an attempt should be made forthwith to develop the Indigenous Systems of Ayurvedic and Unani Medicines. On the basis of this resolution

the Government of India in their Department of Health letter No F. 1-90/46 PR. Dated 13th March, 1947, appointed a Committee with Sir Ram Nath Chopra as Chairman and nine others as members to report on this question

Amongst the various terms of reference this Committee was also 'to consider measures to be taken to increase the usefulness of the Indigenous Systems of Medicine' Although this had tended to narrow the scope of inquiry, the then Hon ble Member for Health, Raja Ghazanfar Ali Khan in his opening address to the committee on 17th March 1947 pointed out that there must be something good in the Indigenous System that even today when the whole world in almost every sphere of life is dependent upon the fruits of modern science they continue to minister effectively to a large number of people in this country As a layman charged with the care of Health of the nation he wanted the Committee to indicate what was wrong or harmful and elucidate whatever is good in these systems for the furtherance of knowledge of health and the benefit of human family

The Committee therefore appointed a Sub Committee consisting of Dr A Lakshminpathi, from the Vaidic Shifa ul Mulk Hakim Mohammad Hasan Qarshi from the Hakims and myself from amongst the doctors as its members to enquire into the possibilities of effecting a synthesis of the three systems on the lines indicated by the Member in Charge of Health

When the Sub Committee met, the advocates of Indian Medicine did not appreciate the need of enquiry into their systems as they were of the opinion that

- (1) the plea to investigate was merely a device for shelving the question of increasing the usefulness of the Indigenous System of Medicine,
- (2) the modern scientists were not competent to sit in judgment as their methods of investigation were quite inappropriate for the study of indigenous systems,
- (3) modern science had to go a long way to reach the facts recorded by their ancient systems, and,
- (4) the indigenous systems were complete, perfect and really super—scientific

It was explained to them that—

- (1) it would be impossible for doctors to support the claims of indigenous systems without a critical scrutiny of their contents,

- (2) doctors now are much alive to the defects and inadequacies of the modern system and that there was a general desire from them to find out whatever was good in other systems;
- (3) doctors would not be true to their system if in matters of investigation they carried their own personal prejudices and inhibitions; and,
- (4) the desire for synthesising the three systems into a single system was not altogether a new one. In the past the late Hakim Ajmal Khan of Delhi had set up an Ayurvedic and Unani Tibbi College of Medicine with the same purpose and more recently the Indian School of Medicine, Madras was also trying on the same line. The results of these efforts have, however, not been altogether satisfactory. The teaching of a hotch-potch of verified and unverified facts in these institutions had produced a mere hybrid type of practitioners who are neither v aids, hakims nor real doctors.

Dr. Lakshmipathi and Shifa-ul-Mulk Qarshi though themselves convinced of the scientific nature and practical efficacy of their systems finally agreed to allow me the opportunity to investigate this question. Accordingly on request by the Chairman of the Indigenous Systems Inquiry Committee, the late Government of India in their Department of Health's letter No. F. 3-23/47-PR, dated the 3rd May, 1947 authorised me "to investigate the extent to which synthesis of Indigenous and Allopathic systems of medicine could be evolved." Initially a period of six months was allotted for this purpose and I was empowered to engage a research team composed of one doctor, a vaid and one hakim for the necessary help.

The work was taken up during the second week of June, 1947 in addition to my duties as Superintendent, Irwin Hospital, New Delhi and Additional Civil Surgeon, Delhi. The advent of political and administrative changes in the country soon made the conditions uncertain for work and later due to lack of any official direction either from the Government of India or the Government of Pakistan I had to disband the team on 31st July 1947 just when I had prepared the necessary ground. Major G. Sambasivan who was one of the original team offered to help me honorarily in Karachi and came over with me from Delhi.

Since arrival in Karachi as Medical Officer on Special Duty I have, however, been so occupied with organising the

Jinnah Central Hospital and Dispensaries that I have had little time to spare and actually utilised the help of Sambasivan for organising the hospital rather than for research. I have now neither any sufficiency of information in regard to the Ayurveda nor as yet the time at my disposal to indicate the full extent of synthesis that may immediately be possible between the three systems but shall herewith submit a copy of my unpublished paper on the Constitution of Medicine for consideration by the Committee.

With such familiarity as I have been able to gain of the Ayurveda during the brief life of my team and on the basis of this paper which deals with few aspects of the Unani Tibb, I may be permitted to conclude that neither the constitution of Western nor of the Indigenous systems is perfect and free of all faults. Each has its own special merits and own special limitations. Progress lies in seeking improvement from the wisdom of others without being swayed by lesser considerations of either narrow nationalism or blind faith in the superiority of one's own school of thought. While the leaders of modern medicine such as Ryle, Walsh and others in the West have for the last two decades been emphasising the need of reform in the scope and teaching of western medicine the adherents of indigenous systems have been begging the State for help in preserving their systems. If, however, we make a united effort in expurgating what is wrong in our own system and willingly accept whatever is good in the other system we could free these systems of their many failings and in this way help in developing a unified system for not only the good of our country but for the benefit of the whole human family.

A study of the three systems shows that the western system though full of most valuable facts is poor in its knowledge of general principles. Hence most of it is available to the student as a mass of disjointed facts which require to be memorised rather than learnt with the help of logic and reason.

The Unani system from having been taken by its followers as a gospel for all times has made no progress. It now lies stagnant with a collection of verified and unverified facts. With the help of general principles it however gives us a simpler and a more coherent account of medical theory and practice than to what is available in the western system.

In regard to the Ayurveda I may opine that by resting on the liberal basis of six Darshnas rather than on any single

philosophy, and due to the fact that it has been passed on to us second hand by Charaka from Atreya Muni through Agnivesa and also what appears in it to be contradictory, claims for itself scriptural authority, this medicine though much more profound and fundamental is yet far from being properly systematised.

Ayurveda translated in English means 'knowledge of life.' Due therefore to its emphasis on the Tridoshas it displayed such neglect of the physical that its pathological study of Sapta Dhatus is but extremely superficial. Its Pancha-Mahabhutas no doubt generalise sensory qualities but they represent complex groups of sensations rather than simpler qualities. Based as it is on the study of human constitution and relies as it does mainly on the facts of observation, Ayurveda is essentially similar to the Unani. It, however, claims to have derived a good deal of its material from the rare faculty of supra-sensory perception and in this way, comes to be much more, abstruse and difficult of comprehension. It is, therefore, felt that if the principles of the less ancient Unani prove to be valid generalisations of the facts of modern science we could employ them as helpful keys in the study of this more complicated system. Thus, the Tridoshas which so far have defied any agreed interpretation may, if I could suggest, prove to be merely satva, rajas and tamas states of both mass and energy as defined in the Unani Tibb.

As the validity of principles employed by the indigenous systems does not depend upon the greatness of faith expressed by their adherents but on a clear demonstration of their ability to generalise the facts of modern science, to Hakims and Vaidas we might therefore say that neither their knowledge nor their methods are suitable for making much progress. If they have a genuine desire for 'increasing the usefulness of their systems' they should seek the help of scientists in securing this objective. To the doctors we might also advise that even though much of the material from the indigenous systems may appear to be too abstract and unrelated to the actual problems of preserving and restoring health it is the investigation of this speculative knowledge rather than mere research on the indigenous drugs which is likely to yield more fruitful results.

In my paper on the 'Constitution of Medicine' I have tried to indicate that the Elements of Unani Tibb are not elements in the sense of chemistry but symbols of the primary qualities of mass and energy and Vital Force of Unani Tibb is not the 'soul' of the philosophers but metabolic energy concerned in the

differentiation and integration of life, and that Heat, Cold, Dryness and Moisture are basic qualities of the constitution as a whole and not any mysteries

If science by inductive means could also give us similar principles for integrating the Western medicine and if the indigenous systems could balance their subjective studies with the more objective methods of science there need no longer be any need of our forcing a synthesis of the three systems. In course of time all the three will automatically develop into a unified and thus a more modern system of medicine

As, however it is not easy for science to induce from the rich harvest of its ever emerging facts and it is too much to expect from vaid and hakims that they will easily depart from their ancient methods it falls on us the doctors to give a new meaning and a new significance to their ancient conceptions and to revise and enrich the factual data of the ancient systems with the help of modern science. If we do this, we could indeed solve our problem of providing adequate health services for the country by adding to the number of university graduates a new type of Basic Doctors, who being equipped with a greater knowledge of the basic principles rather than of the technical minutiae of anatomical and physiological detail, and who being trained more at the bedside and in the fieldside rather than in the university laboratories could willingly act as our missionaries for the promotion of health and alleviation of human suffering in the rural areas

APPENDIX B I—(7)

A NOTE ON SHORT AND LONG TERM PROPOSALS FOR MEDICAL RELIEF WITH SPECIAL REFERENCE TO THE RUSSIAN AND CHINESE SYSTEM—SBY LT GENERAL J B HANCE, C I E, K H S, I M S, & LT COL D P MC DONALD, I M S *

The Committee have expressed their wish to approach their task from the "Long term" aspect and, when the details of this have been settled, then to decide how much of the scheme can be squeezed into the short term, presumably by the method of Procrustes. There is a lot to be said, however, for approaching the problem first from the "Short term" aspect, as, in that way,

*A note submitted to the Health Survey and Development Committee By courtesy of the Director General of Health Services

our feet are more likely to remain on the ground and our decisions to be more workable.

The basic problem is how to raise 260,000 doctors, 770,000 nurses, 69,000 Health Visitors and 850,00 midwives. For the answer, we should not look to the prosperous and highly civilised communities of the U. K. and U. S. A. for our models. Our difficulties are shared by Russia and by China, and, though we may not be in such a desperate plight as China, where it is estimated that the provision of one doctor per 20,000 of the population will be difficult to realise within two decades, we are at the same time not so organised as Russia, where it was possible for 25,000 doctors to obtain diplomas during the first five-year period (1928-1933), as against 1276 in 1913 and for the Medical Schools, in the 2nd five-year period, to receive 116,910 students.

The method of Russia was largely as follows:—

1. A realisation that they could not dispense with the feldsher.

The feldsher and his female counterpart, is a survival of the medieval barber-surgeon who accompanied the armies of those days. When most European armies replaced the Feldsher with army surgeons of academic standing, the Russian Army kept theirs, and they practised also among civilians. Their special functions in the Army were to assist physicians, carry out their instructions, practise minor surgery, vaccinate and, in general, fight epidemics. They worked hard and were miserably paid (25-30 roubles a month).

After the Revolution there was a tendency to discontinue this institution, but it was soon realised that the country needed them especially in rural districts, where fully trained doctors were hard to come by. Eventually, in 1935, special schools giving a three years course, were established for the training of feldshers. In 1936 a decree was issued stating that the number of persons to be enrolled in the autumn of 1937 should be:

(i) in feldsher schools	... 44,770
(ii) in schools of midwifery	13,300
(iii) in schools of nursing	95,000
(iv) in laboratory courses	5,200

Though there is undoubtedly danger in having half-trained doctors practising medicine, yet, in rural districts, it is better to have a half-trained doctor than no doctor at all.

2 *A realisation of the importance of the midwife* The Russian Revolution created a new type of midwife. It was realised that it was she above all others who entering the homes of the very poor would be able to instil there the principles of health and care of infants. Therefore great importance was attached to her training and an Institute for the protection of Motherhood and Infancy was established in Moscow to set a standard and work out a curriculum to be applied to schools of midwifery all over the country. A two years course of theoretical and practical training was set up.

3 An arrangement by which any one who has completed a technical course as fieldsher nurse midwife etc for a specified period may, if he or she has during this period also completed the matriculation requirements at a Medical Workers Faculty designed to train daily workers for higher education proceed to study for a doctor's.

For this purpose two special forms of medical education have been arranged —

- (a) A Night Faculty—giving classes at night for day workers. During their last year students are freed from their day time work in the hospital and given a stipend equal to their salary.
- (b) The Auxiliary receives his medical training in the same hospital in which he is working and gradually acquires theoretical knowledge while perfecting his hospital work.

The method proposed for China is as follows

Doctors being so few and with such large territory to cover it is essential that they be provided with assistants for the less technical aspects of their work. Such assistants may have to function independently of the doctor in remote districts and it is proposed that a new type of nurse able to give first aid diagnose infectious diseases and give simple treatment recognise emergent surgical conditions so as to ensure rapid hospitalisation supervise normal labour and carry out health education should be trained and designated as Medical Assistant or Community Nurse. The responsibility of such nurses would be controlled by reports to the doctors. They would receive the same basic education as hospital nurses with specialisation in community work instead of hospital work during the practical part of their training.

With a further suggestion that

Farmers might be sufficiently trained to enable them to return to their villages and carry out certain medical measures, e.g. minor dressings, vaccination, sanitary, well and latrine construction, simple health education, recording of births and deaths, etc

A possible path for India would seem to lie between the paths of Russia and China. We might base our proposals for the "short term" as follows —

To lay down the foundation of 'Long term' policy i.e., the training of 260,000 doctors, 770,000 nurses, 100,000 pharmacists etc., and all this involves as regards buildings, equipment, setting up of colleges, teaching staff etc

Meanwhile, to cover the more immediate emergency, to take as the four corner stones, the medical assistant, the community nurse, the midwife, and the compounder, and develop adequate courses of instruction for these essential personnel

Consideration might also be given to the possibility of training intelligent headmen in villages to undertake the minor medical work suggested as within the capacity of farmers in China. Then, working from these sure foundations, we could, as time goes on, arrange, on the Russian lines, for the Auxiliary personnel who have helped us through the "Short term" period to improve themselves, and pass on to the higher grade if they so wish

The Medical Assistants and the Community Nurses to become doctors and lady doctors

The Midwife to become a Health Visitor

The Compounder to become a Pharmacist

Finally, when the needs of the country for qualified medical personnel are nearing satisfaction, the ladder can be kicked away, and the lower grades finally closed and abolished

It is, useful here to summarise objectively the arguments for and against the adoption in India of what may be described as the Russo Chinese compromise of provision of Auxiliary personnel of the Technician Nursing category while providing opportunities for them to develop further into fully trained medical and nursing personnel

Arguments in favour

(1) The proposal does not in any way limit or militate against the large expansion of medical colleges, which, it is anticipated, the Committee will recommend

(2) On the contrary, it endorses those recommendations, and further, provides a means of furnishing the newly trained medical personnel with trained Auxiliaries of the Technician variety, thereby increasing their efficiency in rural areas

(3) It affords a possibility of the provision of a large number of Health Technicians quickly

(4) It provides an alternative port of entry to the medical and nursing professions, thereby ensuring the production of more doctors and nurses than could be achieved if reliance were placed upon colleges alone. A military parallel is furnished by the direct entry via, the Cadet College, and promotion to commissioned status from the ranks

(5) It separates and maintains rigidly separate the "doctor" from the "technician," while providing the latter with a portal of entry into the former category

Arguments against This country has suffered too long from the "caste system" in medicine. It is the general desire that the qualification of 'Licentiate' should be abandoned and one basic medical qualification, that of the University degree, be established in India. It may be argued that the creation of the medical auxiliary of "feldsher" is merely a reversion to the earlier stages of the Sub-Assistant Surgeons class and a perpetuation of the existing caste system

(2) The Russo Chinese system demands as a corollary efficient control of the various classes of personnel in the Health Services. Such control can only be exercised in a State Health Service. It is incompatible with present conditions in India in which the individual, having qualified, is not at liberty, unless he obtains entry to Government service to practise unrestricted. Moreover, it is a common experience for the compounder—trained or untrained—to set up, especially in rural areas, as a doctor with no one to say him 'nay'. In existing circumstances then the creation of the Technicians Cadre would be merely to add to the already heterogeneous assortment of so called doctors practising in this country

(3) The danger is very real, and, in the writers' opinion the undoubted benefits which might accrue to India from the adoption of the Russo Chinese compromise are only feasible if the following conditions are satisfied —

- (1) Uniform all India standards of professional and technical education for health personnel, centrally controlled

- (ii) A stable, and continuous long-range health policy, centrally directed, involving the rapid expansion of the Health Services so as to absorb the projected technical personnel and at the same time to provide them with facilities for progressing to full medical or nursing status.

APPENDIX B-I (7-a) -

A Notes on the training of Feldshers or Medical Assistants in Russia, extracted from Sigerists, "Socialised Medicine in the Soviet Union" and from the report on Medical Education in the U.S.S.R. by the League of Nations, 1935

In Russia owing to the great demand for doctors, candidates are accepted after seven years of School, instead of the 10 years required from students desiring to enter medical and other higher technical schools.

Before admission to the Technicum education may first be completed at a Medical workers Faculty. These Faculties were designed, soon after the Revolution, to prepare adult workers for higher educational institutions. If a talented labourer who had been working for at least 3 years in industry wanted to study medicine, he could be admitted to a Medical Worker's Faculty. There, while still working in Factory, he would be instructed during a 3 or 4 years course in language, literature, mathematics physics, chemistry and political science, so that he might meet the entrance requirements of the medical school.

Alternatively, a student may get his additional education where he can find it, in evening classes or home work. The entrance requirements are known, and whoever is able to meet these can apply for examination. The subjects are as detailed above.

The medical Technicum. The medical Technicum exists for the training of middle medical workers—feldsher, midwife, medical nurse, nursery nurse, laboratory technician, dentist and pharmacists—those comprising what are called the middle medical personnel.

Candidates are admitted on passing the entrance examination to the medical Technicum, or secondary medical school, from which they will be graduated after a three year course of training as feldsher, nurse or midwife.

After 3 years of practice the feldsher may apply for admission to a proper medical school for training for a doctor's diploma

The Higher Medical Schools In 1932 a series of Higher Medical Schools were specially created for the advancement of auxiliary medical personnel have the possibility of studying and qualifying for doctor while continuing in hospital service

In these higher Schools the auxiliary works in the hospital during the day, and is able to study in the evening Every sixth day no courses are given so that the students of this Night Faculty, are freed from their work in the hospital and are given a stipend by the State equal to their usual salary

The second method is for the auxiliary to receive his medical training in the same hospital in which he is working This gives the possibility of gradually acquiring theoretical knowledge while perfecting the quality of hospital work

The above method has resulted in the supply of numbers of qualified doctors, while at the same time using the material to the best advantage during the process There is now (1935) under consideration a plan for the reform of education in the secondary medical schools, which are to be much further developed.

This reform provides for the creation of the following institutions to replace those already existing —

- (a) Schools for medical assistant and for medical accoucheurs with 3 years training for persons who have completed 7 years intermediate schooling These schools are to prepare auxiliary medical personnel capable of working independently especially in the country
 - (b) Schools for medical assistants destined chiefly for service in the large hospitals with a course of two years
-

APPENDIX B-1 (8).

SUMMARY OF ANSWERS TO QUESTIONNAIRE III ISSUED BY THE COMMITTEE ON INDIGENOUS SYSTEMS OF MEDICINE BY LIEUT. GEN HAY.

In the course of the reply to the questionnaire issued by the Committee on Indigenous Systems of Medicine, Lt: General Hay, *inter alia* stated, that the indigenous systems of medicine are cheaper in every way. Therefore they specially commend themselves to the poor people of India. The simple, albeit quite inadequate, diagnostic methods of the systems appeal to the untutored mind.

In answer to the question as to what the special features of the indigenous systems are which give them a distinctive and pre-eminent value from the point of view of the health of the community, the Lt-General proceeds to observe that, "there are no such special features in the indigenous systems of medicine. On the other hand, preventive medicine does not come within the purview of the indigenous systems, nor do they deal with such vital aspects of medicine as obstetrics, gynaecology and surgery except the simplest forms of surgical interference as practised by the barber surgeons in other countries in former times. Therefore, these systems cannot by themselves constitute a system of medical practice. They are not based on the biological and physical sciences; every advance of knowledge in these sciences helps to increase the range and effectiveness of the application of the modern medicine as regards diagnosis, treatment and prevention of disease. The indigenous systems are ancient systems which became static in conception and practice many centuries ago, and in no way have they kept pace with the discoveries and researches of scientific workers, whereas, modern medicine is universal with all the sciences to aid it. Modern medicine is both an art and a science and welcomes knowledge from all sources. Scientists of every kind of all countries have contributed and are contributing to make modern medicine in its widest conception precise and accurate in diagnosis, prognosis and treatment, while in the indigenous systems, these aspects are conspicuous by their absence.

In regard to the question if there are any laboratory tests or technique peculiar to the indigenous systems, in addition to physical examination, he observes that "such tests and technique now carried out by indigenous practitioners have been adopted from

scientific medicine in recent years only. In the past, a laboratory had no place in the indigenous systems of medicine except in the preparation of drugs and mixtures by the crude method of "pestle and mortar". As Pathology (barring conceptions that have come down from ancient days) is unknown, the laboratory tests and technique can convey little or nothing to the practitioners of indigenous systems of medicine.

In answer to the question if he is in favour of the exercise of any control over the teaching and practice of indigenous medicine on the lines of the control of the teaching and practice of modern medicine by the Indian Medical Council he states that, India, if progress in health matters is to be made at all, must have as her objective, the development of an adequate national health service based on modern scientific medicine. In the interim period, however, the State should utilise the services of practitioners of indigenous systems and steps should be taken to register these practitioners prescribing reasonable standards of teaching and competence. The prohibition of practice by non registered persons should be examined in all its aspects and steps taken to at least control such practice in an ever increasing degree.

Requested to state what measures he would suggest to increase the usefulness of the indigenous systems, Lt Gen Hay proposes the following measures —

- (i) A complete course in modern scientific medicine should be a pre requisite to training in the indigenous systems of medicines as in all other systems, e g Homeopathy. In other words, there should be compulsory basic medical education for all persons permitted by the State to practice medicine and that basic education should be that imparted in the medical colleges in India to day, and the study of indigenous medicine should be made a post graduate study. In his view the adoption of the above mentioned proposal would make an Indigenous Medical Council unnecessary.
- (ii) Immediate and more intensive study and research into these systems of medicine.
- (iii) Standardisation of medical practice by prescribing a uniform scale of drugs and medical appliances for rural institutions and their production in bulk and distribution through an appropriate agency.

In regard to the question how the measures suggested can be made part of a comprehensive plan of medical relief, and how the existing Vaidyas and Hakims can be utilised, as an immediate measure, in any composite scheme of health service in rural areas, he proceeds to observe that :

As an immediate objective practitioners of indigenous systems may be recruited to the health services of the country and their services utilised as members of the staff of out-door dispensaries, and with appropriate training as vaccinators, sanitary inspectors and on the staff of epidemic control and anti-malarial units. Most of the existing Vaidyas and Hakims do not come up to any minimum standard of competence, which is essential for members of modern health services, as they have only a smattering of knowledge of even indigenous systems of medicine.

He further proceeds to observe that if the objective before Government is that of evolving in due course a national health service based on modern scientific systems of medicine, it becomes imperative that a date should be fixed by Government for the cessation of training in indigenous systems except as a post-graduate study, as it is considered that these systems are not founded on factual methods of diagnosis and treatment. If, however, the State decides to perpetuate these systems in their present form, even though the standards are much raised, (and in his view any such decision would put back the advancement of scientific medicine for many many years), then standards should be laid down for each system both as regards teaching and prescribed examinations.

As for the question if the students of the Western medicine should be taught the indigenous system of medicine and if so, at what stage of their studies, he is firmly of the opinion that this will be wasting his time and giving him no additional knowledge. As already stated any doctor who desires to study the ancient systems of Indigenous medicine should do so by post-graduate study after obtaining his basic medical qualification.

In reply to the question if he is in favour of evolving one system of medicine in India by a process of fusion of the Ayurvedic, Unani and the Western systems and if so, what proposals he has to make, Lt. Gen. Hay states that, indigenous systems of medicine are static in conception and have not progressed for centuries for lack contact with scientific progress. For an answer to this question he refers to his proposals above.

APPENDIX B-I (9)

INDIGENOUS SYSTEMS OF MEDICINE AND HOMEOPATHY IN
RELATION TO STATE HEALTH SERVICES BY DR K. C. K. F. RAJA
OFFICER ON SPECIAL DUTY (PLANNING & DEVELOPMENT)
OFFICE OF THE DIRECTOR GENERAL, INDIAN MEDICAL
SERVICE AND SECRETARY, HEALTH SURVEY AND
DEVELOPMENT COMMITTEE

The indigenous systems of medicine and Homeopathy are popular with large sections of the people in India and in recent years, Governments, local bodies and influential members of the public have lent support to the extension of State aid to these systems of medical practice and to the utilisation of the services of their practitioners in the building up of the national health service. The resolutions passed at the Conference of the Central and Provincial Health Ministers in October 1946, which strongly support these systems, and the appointment of the Chopra Committee by the Government of India to report on the indigenous systems, point the way to a possible intensification of effort, in the immediate future, i.e. incorporate their practitioners in the State health organisation and to set apart an appreciable proportion of the available funds for health development to the needs of these systems of medicine. In the circumstances, it seems essential to examine dispassionately their claims and that of scientific medicine for public recognition to determine, in the light of all relevant considerations, whether the State will be justified in extending support to indigenous medicine and to Homeopathy and, if so within what limits especially because, in all other civilised countries, community health services are based on scientific medicine. It must, at the same time, be realised that the main strength of indigenous medicine lies in the fact that the proportion of people served by it is at present very high and that, under a democratic form of government, the support that the people extend to indigenous system cannot but influence State action. An essential condition for the attainment of its rightful place by scientific medicine in India as other countries would seem to be a rapid expansion of its range of ministrations to the people.

The reason why modern scientific medicine has not been made available to the people, in the past, on a sufficiently large scale has been clearly stated in the report of the Bhoré Committee. That Committee says "even after making due allowance for the much higher national incomes in those countries (Great Britain and United States), India should spend annually

about Rs. 3/3 per head of the population if her expenditure on health services were to bear the same relation to the national income as the amount spent in Great Britain in 1934-35 on health measures bore to her own national income. On the basis of a similar comparison with the United States, India's per capita expenditure on health should be Rs. 2-5-0. In comparison with these figures the combined expenditure on medical relief and public health activities in the provinces during 1944-45 ranged between 2.8 annas per capita in the Central Provinces and 10.9 annas in Bombay. The money spent on health measures, when expressed as a percentage of total provincial expenditure, varied from 2.5 per cent to 7.3 per cent in the different provinces". In the circumstances, it is clear that India could not have developed reasonably efficient or sufficiently extensive service to enable modern scientific medicine to reach the many millions of this country. While therefore, a supreme effort is essential for speeding up the process of organising efficient health services in India, it is for consideration whether the object in view should be attained through the utilisation of modern medicine or whether it should be achieved through support to the indigenous systems of medicine. At least two points arise for consideration in this connection; firstly, the relative merits of modern medicine and the systems and, secondly, the rapidity with which practitioners can be trained in each of them. As regards the latter, all the more recent schools and colleges for the training of students in indigenous systems, which have received support from Provincial Governments, appear to have a four years' course. The proposals of the Bhore Committee will reduce the existing medical course for students in modern medicine from five years to four. No special advantage seems therefore to exist in regard to the rapidity with which trained persons can be turned out.

As regards merit, it is considered that modern medicine is incomparably superior to the indigenous systems. The human body in its reactions to its environment behaves fundamentally in the same manner all over the world and biologically disease is the result of a mal-adjustment between man and his total environment—physical and social. It does not therefore seem correct to hold that the true interpretation of such mal-adjustments could be undertaken successfully by a variety of different systems of medicine. Modern scientific medicine has, in contrast with the other systems, its foundation laid firmly on the biological and physical sciences and it is therefore, the one system which approaches the problem from the rational point of view. "The

basic principles on which interpretation of disease has been attempted in the indigenous systems can, on the other hand, hardly be accepted in the light of modern scientific knowledge. Further, every advance or knowledge in the physical and biological sciences would help to widen the range and effectiveness of the application of modern medicine as regards the diagnosis, treatment and prevention of disease. The indigenous systems, if they are to retain their identity by being wedded to their basic principles cannot, on the other hand, fall in line with modern scientific—thought, the acceptance of which would necessitate a complete revision of these principles. Moreover, indigenous medicine suffers seriously from the fact that it has no contribution to make towards preventive health work.

Homeopathy has been defined as “a system of treatment of diseases by the use of agents that, administered in health, would produce symptoms similar to those for the relief of which they are given” (Gould's Medical Dictionary). Thus Homeopathy is more a system of therapeutics rather than of medicine in its wider sense, which includes the investigation into, and interpretation of all factors which promote health and cause disease. Such basic sciences as Physiology, Anatomy and Pathology do not therefore seem to come within its scope. Further, preventive health work and various specialities, such as Obstetrics and Gynaecology and Surgery are not provided for in this system of medicine. Therefore Homeopathy cannot, by itself, constitute a complete system of medical practice.

It may also be pointed out that, in regard to the indigenous systems and Homeopathy, another consideration which should not be ignored is that, the Government of India by becoming a member of the World Health Organisation will undertake certain responsibilities in the field of international health and that the health services developed in the country should therefore be such as to enable Government to fulfil these obligations. An extract from the World Health Organisation Charter, which shows its functions, is attached. Its perusal will show that it is only by the adoption of scientific medicine that the country will be able to discharge its responsibilities towards the World Health Organisation. Participation by India in the standardisation of diagnostic procedures, in the development of international standards in respect of biological, pharmaceutical and similar products or in the study and report on ‘administrative and social techniques affecting public health and preventive care’ will become impossible, unless, she adopts the same system of medicine (the scientific

system) which other nations have adopted for the organisation State health services.

The arguments set out in the preceding paragraphs emphasise the importance to India of basing her health services on scientific medicine both from the point of view of satisfying her own medical needs and of meeting her international obligations. Nevertheless, the supporters of the indigenous systems point out that, apart from various extravagant claims for these systems which many people advance, the need for extending some form of health protection to the people as widely as possible is urgent and that a decision to utilise all available resources towards this end is inescapable on the part of Governments based on popular support. They also point out that such expansion of health services will be severely handicapped in the near future if Governments depend solely on modern medicine. Further, they emphasise that probably 90 percent of the rural population receive at present such medical aid as they obtain only from the practitioners of these systems. There is considerable force in these arguments and they can be met only by an acceptance of the position that indigenous medicine will have to be utilised under present conditions to promote a rapid extension of health services. While agreeing to this it is equally necessary to emphasise that the following considerations should be kept in view :

1. India must have as her objective the development of an adequate national health service based on scientific medicine and it is for consideration whether a date should not be set for the attainment of this objective.

2. The fulfilment of the above mentioned purpose necessitates the training of health personnel of all categories required for a modern health service with the least practicable delay.

3. If, in the interim period, the utilisation of the services of practitioners of indigenous systems is accepted by the State as a desirable step the following measures should it is considered, be adopted :

- (a) Action should be taken, on the lines already followed in certain provinces, to register the practitioners of these systems, to prohibit practice by non-registered persons and to secure reasonable standards of competence for their practitioners by prescribing and enforcing the necessary rules regarding training and examinations in respect of each of these systems. In the interests of the Public, existing practitioners should, unless they have had approved courses of training, be made to qualify themselves

for entry into the appropriate Register by passing some test to be prescribed by Government in respect of each system

The training given in the more recent Ayurvedic and Unani schools and colleges which have received the recognition of Provincial Governments, incorporates modern anatomy, physiology and pathology and superimposes on this foundation the theory and practice of the Ayurvedic or Unani system as the case may be. Such a training programme is open to grave objection. The anatomy, physiology and pathology which the student of an indigenous system of medicine is taught give him basic ideas which do not fit into the theory and practice of the particular system of indigenous medicine with which he is concerned. Two courses seem to be open. One is to decide that these systems should be taught on orthodox lines so as to incorporate only their own concepts regarding the human structure, its functions under normal and pathological conditions and the methods of diagnosis and treatment of disease. Thus the course of training in each system will preserve its organic unity. Another approach towards the solution of the problem would be that based on the recognition of the fact that the fundamental purpose of medical and other types of education should be to develop the student's mind on scientific lines and to engraft the knowledge and practice of the particular branch of work for which he is equipped—medicine or others—on this foundation of scientific training. If this point of view is accepted and this appears eminently desirable, a complete course in modern scientific medicine would seem to be desirable as a pre-requisite to a man's undertaking training in the indigenous systems of medicine, because the former will give him an adequate background of scientific knowledge in regard to disease its treatment and prevention. It is for consideration whether, in respect of schools and colleges of indigenous medicine maintained by public funds, it would not be desirable to lay down the condition of those who are admitted for training should have had a full course of education in scientific medicine. It is also for consideration whether in the interests of conserving the limited funds available for medical education, it may not be advisable to provide that Ayurveda, Unani or other form of indigenous medicine may be taken up as an optional subject by the medical student either in the final year of his course or as a subject for post graduate study.

(b) When the objective before the country is that of evolving in due course, a national health service based only on modern medicine, it becomes imperative that a date should be

fixed by Governments for the cessation of training in the different indigenous systems of medicine. Even so, there will be available a reasonably large number of practitioners of indigenous medicine to satisfy the demands of the people for a period of 25 or 30 years. In the meantime a vigorous attempt to extend health services based on modern medicine should be made.

(c) It is essential to avoid the development of parallel systems of medical service under the State, which are based on scientific medicine and on indigenous systems. Such a development has already taken place to some extent in certain provinces and further expansion on the same lines is bound to create administrative difficulties in an increasing degree. The suggestion is therefore put forward that practitioners of indigenous medicine should be fitted into the provincial health services so that they form an integral part of such services. It is in the rural areas that indigenous medicine has its widest application and it will be wise to use such practitioners for an immediate extension of medical relief for the rural population. In doing so, standardisation of medical practice by prescribing a uniform scale of drugs and medical appliances for rural institutions and their production in bulk and distribution through an appropriate agency under State auspices will be a distinct advantage. Such a medical organisation established and controlled by the State can be made progressively smaller in relation to the extent to which scientific medicine advances into the rural areas and thus the creation of a modern health service throughout the country will be achieved smoothly and without serious administrative difficulties.

The need for extending preventive health work in the rural areas is equally urgent. Those who qualify from the new Ayurvedic and Unani colleges have generally a back ground of general education equivalent to the Matriculation and it should not therefore be difficult to give them short courses of training in preventive health and utilise their services for the control of epidemics, for supervising anti-malaria measures and for carrying out health propaganda.

It is desirable to secure for the benefit of all, whatever is valuable in the indigenous system of medicine. Research into indigenous drugs has brought to light a certain number of remedies which are of value and such investigations should continue. In practice, research into indigenous drugs has been supported by the Indian Research Fund Association with annual grants over the last twenty five years. Further it is desirable to

secure any other contribution that these systems can make to the sum of medical knowledge. For this, a study of these systems by men who have been accustomed to modern scientific thought and research will be necessary and the Bhoze Committee suggested the establishment of a chair of History of Medicine in the proposed All India Medical Institute. This professor may, as a result of his studies, be able to suggest to Clinicians, Pharmacologists and other workers what particular lines of investigation can usefully be undertaken. Similar team work, can with advantage, be also attempted in other centres of medical teaching and research, for instance in a few of the well established medical colleges in the country. A pre requisite to such investigation would be that the practitioners of the indigenous systems should be prepared to reveal any specifics which they now keep as secrets.

APPENDIX B II (1)

Special Memoranda

MEMORANDUM ON "THE SCIENCE AND THE ART OF INDIAN MEDICINE" PRESENTED TO THE MADRAS GOVERNMENT COMMITTEE ON THE INDIGENOUS SYSTEMS OF MEDICINE
BY THE SECRETARY (VAIDYARATNA CAPTAIN
G. SRINIVASA MURTI, B.A. B.L. M.B. & CH.)
AND PUBLISHED BY THEM IN FEBRUARY
1923

Abridged, revised and edited for The Committee on the Indigenous Systems of Medicine, Government of India by the same author (who opted Member of the Committee) in July 1948.

"Remember Three Things"

H. E. Sri C. Rajagopalachari, Governor of West Bengal and Governor General designate, was given a farewell ovation by members of the Bangiya Ayurveda Mahasabha at Government House, Calcutta to day (17.6.48).

Replying to their address, Mr. Rajagopalachari referred to the "superstition and prejudice even among the modern medical practitioners" and said:

Truth and Science are one. There can be no competition between truth and truth but only between truth and error. I would, therefore, entreat you to remember three things: one is to demand and not to oppose high standard of education and equipment and careful selection in admitting students to your colleges.

*By courtesy of the Govt. of Madras

for courses in medicine. The other is to include modern scientific knowledge alongside of our traditional Ayurveda in your institutions so that, Truth may run in a single course and prejudice and ignorance vanish to the minimum point. Thirdly, scientific research should be encouraged and there should be no opposition but full co-operation in this between the Western doctors and the learned Kabirajas.

A. P. I., ("The Hindu" 19th June 1948.)

The Thesis.

Many and varied have been the objections that have been raised, from time to time, against the recognition and encouragement by the State of the indigenous systems of medicine like the Ayurveda, the Siddha and the Unani; these objections have always been challenged by exponents of these systems as well as by others interested in their promotion; the resulting controversy has sometimes been mild and sometimes wild; some of the objections are trivial while others are vital; and round none has the fire of controversy raged so fiercely as on the central question whether these Indian systems of medicine are scientific or not. The object of this memorandum is to view things from a scientific standpoint and stimulate scientific discussion on a subject which, it is clear, can now be neither ignored nor shelved.

It is perhaps just as well that I state at the very outset the conclusions, which I have formed from such study of the Indian systems as I have been able to make, so that it may be known beforehand what it is that I am striving to elaborate in this Memorandum. I have studied these systems from the two standpoints from which every system of medicine has to be judged, viz., (1) as a Science and (2) as an Art; and my conclusions may be briefly summed up as under :

(1) *As a Science*.—The Indian systems are undoubtedly scientific; their general principle and theories (both in subjects of preliminary scientific study like Physics, Physiology and the like, as also in the subjects of Medical Science proper, like Pathology, Medicine and so on) are quite rational and scientific.

(2) *As an Art*—As practised at present, Indian systems are not self-sufficient. If we divide Medical Science broadly into two sections, viz., Medicine and Surgery, the Indian systems are, in the main, self-sufficient and efficient in Medicine, while in Surgery they are not.

In both Science and Art, there are points which Indian and European systems can well learn from each other with immense

profit to both, that they may so fraternise and learn is a consummation devoutly to be wished, not only in the best interests of science but also of what is even more important than science itself, viz, suffering humanity

Such is my thesis, which I now proceed to develop, under the following headings

- (1) Scientific methodology.—Pratyaksha and Anumana.
- (2) Subjects of preliminary scientific study—the Panchabhuta Theory
- (3) Physiology and Anatomy—the Thri dhatu Theory
- (4) Etiology and Pathology—the Thri dosha Theory.
- (5) Pharmacology—the Rasa Guna Veerya-Vipaka-Prabhava Theory
- (6) Diagnosis and treatment—Application of Thridosha Theory
- (7) Indian systems judged from the standpoint of Art.

Scientific Methodology

The Ayurveda, the Siddha and the Unani—their Mutual Relationship.

As stated at the outset, it is round the question whether or not the Indian systems have any scientific methodology at all that there has been a good deal of controversy. If we are to return any precise and definite answer to this question we must first be clear as to what we exactly mean by "science" and "scientific method", for, in the past, a good deal of confusion has been caused by failure to settle this preliminary point, and discussions have been carried on with little mutual understanding on the part of the controversialists. Hence it becomes necessary to enquire whether the European and the Indian methods of investigation have any common foundations or criteria of belief, to which both of them can appeal to test the validity of any fact or proposition that is at issue to this end, I propose first to lay down in broad outline the essentials of scientific method as pursued by both the Western and the Hindu scientists, and then proceed to show that both have common foundations and a common platform where both can profitably meet and learn from each other

Regarding the methodology followed in the Unani system, I regret I cannot speak from first hand knowledge, for I know neither Arabic, Persian nor even Urdu, and it would be unwise in so important a matter to rely solely on translations. I have,

however, the high authority of the renowned Janab Hakim Ajmal Khan Bahadur of Delhi to say that Arabian medicine was founded on Ayurveda.¹ As regards the Siddha system, its fundamental bases such as the Thri-dhatu Physiology and the Thri-dosha Pathology are common ground between it and Ayurveda. Hence it is submitted that though in the following discussion of the scientific bases and methodology of the Indian systems, it is Ayurveda that is mostly referred to, yet we may take it that, so far as the present topic is concerned, what applies to Ayurveda applies generally to the Siddha and the Unani systems as well.

The Essentials of the Western Scientific Method.

Some people are in the habit of talking of the scientific method as though it were extraordinarily recondite, knowable only to the elect and the very high in intellect. While this is certainly true of the higher reaches of science, yet there is nothing extraordinarily mystic about the general conception of the scientific method which even the novice cannot appreciate if he wants to ; its essential characteristic is a particular intellectual attitude towards any problem that may come up for solution, whether it be a problem in mathematics, physics, economics, æsthetics, education, law, medicine, engineering, state-craft, handicraft, or any other branch of knowledge. Many people in the world may be applying the scientific method in their daily round of duty without their being aware of it. "We may get a good lesson in scientific method from a business man meeting some new practical problem, from a lawyer sifting evidence or from a statesman framing a constructive bill"². "The man who classifies facts of any kind whatever, who sees their mutual relations and describes their sequences is applying the scientific method and is a man of science"³. What science demands from its votaries is a severe discipline in the habitual use of the keen eye, the sharpened intellect and the trained mind. The all-observing keen eye of the scientist helps him to observe widely, and collect together as many facts as he can gather. This is often a very laborious process. The sharpened intellect, playing upon the facts so gathered, carefully analyses and catalogues them under certain categories. These categories, viewed from a synthetic standpoint, suggest certain generalizations which include all the facts or phenomena so far observed. The trained mind brooding upon these generalizations evolves a hypothesis, or may

¹Vide the publication entitled "The Scheme of the Ayurvedic and Unani Tibbi College, Delhi", and appendix A attached thereto

²*Introduction to Science* by Thomson—Home University Library, page 68.

³Karl Pearson—*Grammar of Science* (3rd edition). Part I, page 12.

be, more than one hypothesis, in explanation of, and based on, these observed facts or phenomena. Now, every such hypothesis is merely a claim waiting to be verified, but the claim may or may not be accepted. Experiments are undertaken to test the validity of these hypotheses. All those which are not verified or found valid by experiments are rejected. That hypothesis alone which is shown by experiment to work best, becomes the accepted theory, which, be it noted, is nothing more than the best working hypothesis, among perhaps several that may have been advanced, moreover, its acceptance is merely tentative or provisional, contingent not only on the continued occurrence of verificatory phenomena but also on similar non occurrence of contrary ones, for there is really no finality in science, and the scientific method is essentially a hypothetical or experimental method of trial and error. "It treats all 'facts' as data to be tested, all 'principles' as working hypothesis, to be confirmed, all 'truths' as claims to be verified. All allegations therefore, must be tested, and are valued according to the scientific consequences to which they lead. In all this a vivid imagination is a most precious gift provided it is strictly controlled by rigid logic and crucial experimentation. At the outset, therefore, scientific method is content with provisional conclusions that are not greatly trusted, and to the end, it is recognized that the human mind does not respond to the infinite gradations of logical probability, but declares itself satisfied and certain, as soon as the evidence for a belief seems to it adequate. After that, the question is humanly settled unless and until something occurs to reopen it. For there is no absolute *chose jugée* in science." Science then is merely "criticised, systematised and generalized knowledge, that is to say, the student of science takes more pains than the man in the street does to get at the facts. He is not content with sporadic knowledge, but will have as large a body of facts as he can get, he systematises these data and his inference from them, and sums up in a generalization or formula. In all this, he observes certain logical processes, certain orders of inference, and we call this, "*the scientific method*"

"Of such modes of inference there are no more than there were in the days of Aristotle, who recognized three, (a) from particular to particular (analogical reasoning), (b) from particular to general (inductive reasoning), (c) from general to particular (deductive reasoning). Let us take a few examples

¹Professor Schiller in *Psychic Research Quarterly*—Volume 1 pages 12-13

(a) "*Analogical Reasoning.*—The geologist tells us the story of the making of the earth and describes what happened millions of years ago, and in many cases he relies on analogical reasoning.

(b) "*Inductive Reasoning* —This is argument from particulars to the universal, and science is full of illustrations. Galileo had smooth inclined planes made and then, by rolling balls down them and measuring the time and squares of descent, he discovered inductively that the space fallen is always as the square or the time of falling.

"The inductive method may almost be called Baconian; for Bacon was the first to show that the sound way of studying Nature was to work up from particulars to principles. He called his method the 'new instrument'—the *Novum Organum*. It was founded on the principle that things, which are always present, absent, or varying together, are causally connected.

(c) "*Deductive Reasoning.*—This is argument from the universal to particulars, the kind of inference which enables the long arm of science to reach, back through the ages that are past, and forward into those which are to come. By deductions, Neptune was discovered before it was seen. By deduction, given three good observations of a passing comet, we can predict its return to a night."

Comparison with the Hindu Scientific Method

According to Hindu Methodologists, the process of 'ascertainment of truth' depends on the correct understanding of our sources of valid knowledge (i. e., *pramanas* or proofs) which are as follows. (1) *Prathyaksha* or direct observation and perception, (2) *Anumana* or logical inferential reasoning of the nature of induction and deduction and (3) *Shabda* (*Apthavachanam*) or competent testimony of 'knowers of the Vedas,' or the revealed scriptures generally.

[This is according to the Sankhya school of thought. It is only right to add that the Nyaya (logic) adds a fourth source of valid knowledge, namely, *Upamana* (or analogy or comparison), while the Mimamsa (exegetics) has two more still, namely, *Arthapatti* and *Abhava* (Presumption and Privation); but I proceed here on the view that the threefold Sankhya division includes, in itself, both the fourfold Nyaya and sixfold Mimamsa divisions.]

¹ Introduction to Science—Thomson, pages 58-61 (Home University Library).

If we now compare the inductive (Baconian) and deductive methods of the West with the scientific method of Anumana, as practised by the Hindus, we find a striking similarity, for, what is Anumana? 'Anumana (inference) is the process of ascertaining, not by perception or direct observation, but through the instrumentality or medium of a mark, that a thing possesses a certain character. Inference is therefore based on the establishment of an invariable concomitance (Vyapti) between the mark and the character inferred.' But how is this Vyapti (or invariable concomitance) to be ascertained? This is done exactly as it is done by Western scientists that is to say, by means of observations and experiments, thoroughly checked and tested by the canons of strict scientific Logic. 'The observation of agreement in presence (Anvaya) as well as agreement in absence (Vyatireka) between two phenomena with the non-observation of the contrary (Vyabhicharadarshanam) is the foundation of our knowledge of Vyapti. Obviously, mere observation of their agreement in presence and their agreement in absence is no help in the matter. Take a concrete example. The ass is customarily employed to bring the fuel with which fire is lighted. In a hundred cases you have observed the ass among the antecedents of smoke. In a hundred cases you may have observed that when there is no ass there is no smoke. This is no warrant for concluding a relation of cause and effect between an ass and smoke. It may be that you happen to have never observed smoke without an antecedent ass, or an ass without smoke following. Even this is of no avail. It is not agreement (unbroken and uniform though it be) in presence or in absence or in both that can settle the matter. There is one and only one way of ascertaining the causal relation. Suppose A with certain accompaniments is found to precede B immediately. Now if A disappearing B disappears, even though all other antecedents remain and there is no other change in the case then and then only can the causal relation be ascertained. But this does not establish the unconditionality of the concomitance which is essential to a Vyapti. We have, therefore to examine the cases carefully to see if there is any determining condition (Upadhi: i.e., some hidden or undetected but really operative or indispensable accompaniment) which conditions the relation between the supposed sign or mark (Gamaka) and the supposed signate (thing signified Gamya). Every one of the accompanying circumstances (of course the likely ones) may be taken successively, and it may be shown that the concomitance continues even when the suspected Upadhi

(Shankitopadhi) is absent, and therefore it cannot be the Upadhi. And this is to be fortified by the observation of uniform and interrupted agreement in absence (Vyatireka) between the two concomitant phenomena. In this way, when we have disproved all suspected Upadhis, we conclude by establishing the Vyapti. It is true that we may still go on doubting; but, doubt has a certain limit for the 'experimenter' and the thinking person (Pareekshaka, Prekshavan). When doubt overthrows the foundation of all rational practice or leads to a stoppage or arrest of all practical activity, it stands *ipso facto* condemned, and must be abandoned. Thus it is that Vyapti is ascertained. In this way we observe innumerable instances of Vyapti. Now, by means of repeated observations of this kind (Bhuyo Darshana) we have established the principle of the Uniformity of Nature (Swabhava pratibandha) and also of Causality (Karyakaranabhava); and these two principles thus ascertained may be made use of in their turn as the basis of an argumentation or deduction (Tarka, Uha) to confirm a particular Vyapti in a particular case. Tarka or Uha, then, is the verification and vindication of particular inductions by the application of the general principles of Uniformity of Nature and of Causality; principles which are themselves based on repeated observation and the ascertainment of innumerable particular inductions of uniformity or causality. Thus Tarka also helps in dispelling doubt." ¹ Students of Western scientific methods cannot fail to notice the close resemblance between the above methods and those designated by Mill as 'The Joint Method' and 'The Method of Residues'; if, further, we consider also Mill's 'Methods of Concomitant Variations' and compare the Western Method with what the Hindus call the 'Panchakarni', the resemblances become even more striking; the Panchakarani is illustrated thus: "The following changes being observed, everything else remaining constant, the relation of cause and effect is rigorously established: First step—the 'cause' and 'effect' phenomena are both unperceived. Second step—then the 'cause' phenomenon is perceived. Third step—then, in immediate succession, the 'effect' phenomenon is perceived. Fourth step—then the 'cause' Phenomenon is sublated or disappears. Fifth step—then, in immediate succession, the 'effect' phenomenon disappears. Throughout, of course, it is assumed that the other circumstances remain the same (at least the relevant or material circumstances)." ² The student of

¹ Seal—*The Positive Sciences of the Hindus* (1915 edition), pages 250–57, 276–77.

² *Ibid*, pages 253–59.

the Physical Sciences cannot fail to notice its general resemblance to the Baconian Inductive principle that, if things are, in experience, found to be present, absent or varying together, they are in all probability, causally connected, only, what the one following Mill, would call 'the Law of Agreement, difference and concomitant variation,' the other would call the Panchakarami, because the conclusion is reached by Pancha (or five) steps "This Panchakarami, the Joint Method of difference has some advantages over J S Mill's method of difference, or what is identical therewith, the earlier Buddhist Method, and the form of the canon, bringing out in prominent relief the unconditionality and the immediateness of the antecedence, is as superior from a theoretical point of view to J S Mill's canon, and is as much more consonant than the latter, to the practice of every experimenter, as the Hindu analysis of Anumana as a Formal Material Deductive-Inductive inference is more comprehensive and more scientific than Aristotle's or Mill's Analysis of the Syllogism (or mediate inference), for the Hindu inference (Anumana) is neither merely formal nor merely material but a combined Formal Material Deductive Inductive process. It is neither the Aristotelian Syllogism (Formal Deductive process), nor Mill's Induction (Material inductive process), but the real inference which must combine formal validity with material truth, inductive generalization with deductive particularization."¹ Such then is the Hindu scientific method. I see much of common ground between the two systems of scientific methodology, the Hindu method of Pratyaksha (or direct perception) has its analogue in the observational method of our Western brethren, so too, as has been discussed before, the method of Anumana has its analogue in the Western methods of Logical Inferential Reasoning of the Nature of Analogy, Deduction and Induction (Baconian Method). He who goes through the works of the master minds among both Eastern and Western scientists finds that there is a striking resemblance in their intellectual attitude towards problems that presented themselves before them, it is an attitude characterized by accurate observation (Darshana and Bhuyodarshana), precise description, correct classification patient experimentation (Pareeksha), rigid reasoning (Yukti Yukta), careful verification (Nirnaya), institution where necessary of crucial tests (Vinigamaka), and, above all, that supreme faculty of analytico-synthetical imagination (Buddhi) that can see the one connecting law running through the whole range of a mass of

¹ Seal—*The Positive Sciences of the Hindus* Pages 290—1

apparently unconnected phenomena and enable the Newtons of all times to take their gigantic leaps 'from the falling apple to the fallag moon.' "An isolated fact," says Henri Poincare, "can be observed by all eyes—by those of the ordinary person as well as of the wise. But it is the true physicist alone who may see the bond which unites several facts among which the relationship is made, though obscure. The story of Newton's apple is probably not true. But it is symbolical. So, let us think of it as true. Well, we must believe that many before Newton had seen apples fall, but they made no deduction. Facts are sterile until there are minds capable of choosing between them and discerning those which conceal something and recognizing that which is concealed—minds which, under the bare fact, see the 'soul' of the fact." Now the methods by which thinkers, both in the East and in the West, have tried to see, 'under the bare fact, the soul of the fact' are fundamentally similar, although one calls it by the name of Anumana, while the other labels it as the method of Deduction and Induction (Baconian), that is only a difference in name—not in essence.

The Limitations of All Scientific Methods.

Then again there is fundamental agreement as regards the essential limitations of these scientific methods ; both agree that Prathyaksha (or direct observations and appearances) frequently deceive us. The use of such a term like the 'ultra-microscopic', for example, must remind us that the range of our senses is distinctly limited, even when aided by instruments of marvellous power and precision. We have 'light' whose brightness is too high for the range of perception of our eye. So in the midst of the most intense 'light,' we may be in utter darkness. We have 'sounds' whose vibrations are beyond the range of perception of our ear ; and so, in the midst of the most powerful 'sounds' we may be stone-deaf. It is therefore a well-recognized fact, both in the East and the West, that, for the ascertainment of truth, direct perception does not take us very far. Hence, people have everywhere turned to experimental and hypothetical methods of logical inferential reasoning, with a view to add to, or correct the knowledge gained by direct perception. Thus, the sense-impressions regarding the fixity of the earth and movement of the sun round it are corrected by an elaborate process of reasoning which leads to the conclusion that it is really the sun that is relatively fixed and the earth that moves round it ; so too, the very familiar optical illusions of our everyday life, such as the apparent increase in the size of the sun and the moon when at the horizon

than when at the zenith, the apparent rising and setting of the stars, and such other phenomena, are other instances of how the senses deceive us, and how often things are not really what they seem. Both are also agreed that all the three scientific methods so far discussed, viz, Analogy, Induction and Deduction are themselves not free from possible errors. The method of analogy that has done so much to illumine many dark abysses, specially in Geology, and Biology may be vitiated by some vital differences between the two sets of conditions compared. "Logical inferential reasoning, in both its aspects (induction and deduction) can never get rid of doubt as to the absolute truth and soundness of its conclusions, as the late Lord Balfour showed in his *Defence of Philosophical Doubt*. Deduction depends on the validity of its premises, axioms, and postulates, and on the perfect subtleness and strength of the reasoning powers. Induction, unless we have an infinite number of facts and an infinite mental capacity to comprehend all such facts, cannot also give us the exact truth. An inductive conclusion, though based on a million instances, becomes wrong if one single instance to the contrary is clearly proved to exist, and a higher law which would explain and include the single contrary instance also has to be searched for."

It is essential that these limitations of the scientific method must be specially emphasized, as extravagant expectations still continue to be entertained regarding its possible achievements, and that, not only by the public at large, but, as was pointed out by Prof. Schiller, by professed logicians also. The public still believes," he says, "that mathematical demonstration is the *ne plus ultra* of cogency, though modern mathematicians are under no such illusion. They understand that it has only the hypothetical certainty of a coherent system of assumptions and the practical value of a well chosen one"¹. Different minds are differently constituted, some being influenced more by the first of these two considerations, while others are more influenced by the second. To some people—the Pragmatists, for example—the most satisfactory testimony for truth is not so much its logical consistency, as its utility and practical application to reality. 'Truth is what works' is their great mantram. To some minds, however, the most satisfactory testimony for truth is its logical consistency, they accept that proposition as the best which, to them, has the logical certainty of a coherent system of assumptions. This will perhaps explain in some measure why, ever since the dawn of history, there have been sects in medicine as in every

¹ *Psychic Research Quarterly* Volume 1, page 9

other science and there have been bitter quarrels among them. "The quarrels of doctors" says Osler, "make a pretty chapter in the history of medicine. Each generation seems to have had its own. The Coans and the Cnidians, the Arabians and the Galenists, the Brunonians and Broussonians, the Homeopaths and the Regulars, have in different centuries rent the robe of *Æsculapius*." Can we not do better than add one more quarrel to this dismal list? Wherever knowledge is imperfect, as it undoubtedly is in medicine, differences of views are inevitable. But they need not result in unworthy disputations among those whose one common aim is the eternal quest of truth. We have seen how strong the resemblances are between the modern Western scientific methods based on Baconian Induction and Deduction, and the ancient Hindu methods of Pratyaksha and Anumana, such as Vyaptigraha and Panchakarni; we have also seen that both agree in their recognition of the essential limitations of the scientific method, and in thinking that, not only the senses and the intellect may deceive us, but that even reasoning may lead us astray; for, given a sufficiently robust will-to-believe, one can always find reasons to continue to believe what he wants to believe, unaffected by any reasoning; faced thus with the problem of judging and choosing rightly among a number of contending alternatives or hypotheses, both have come to very nearly the same conclusion and it is this—There is no finality either about our premises or our conclusions; all that we can do is to test each hypothesis with the greatest possible care and accept that which explains best and works best, or explains better or works better, than any other. Hence it is that, both in the East and in the West, the tests of a valid hypothesis are extremely rigid and stringent. To illustrate my point, I cannot perhaps do better than compare the various tests of a valid hypothesis as laid down by both Western and Eastern Scientists.

Tests of A Valid Hypothesis According to Western and Hindu Scientists.

The tests are as under :—"A good hypothesis must allow of the application of deductive reasoning and the inference of consequences capable of comparison with the results of observation. A good hypothesis must not conflict with any laws of nature which we hold to be true. In a good hypothesis, the consequences inferred must agree with the facts of observation. It often happens that two (or even more) hypotheses have been put forward in possible explanation of phenomena, and owing, perhaps, to both agreeing with a large number of experimental facts, it may

be exceedingly difficult to choose between them. Obviously, both cannot be correct, both may be wrong, one must be wrong. How are we to decide? We require a new experiment which shall give results agreeing with one hypothesis, but not with the other. Such an experiment which decides between two rival hypotheses is called an *Experimentum Crucis*. A Crucial experiment confirms one hypothesis, but rejects the other" (Scientific Method by Professor Westaway, pages 245-246). Compare the close agreement between this and the tests of a legitimate hypothesis (Kalpana) as laid down by Hindu Scientists. "A legitimate hypothesis must satisfy the following conditions — (1) the hypothesis must explain the facts, (2) the hypothesis must not be in conflict with any observed facts or established generalizations (Jayanta, Jyayamanjari, Ahnikal), (3) no unobserved agent must be assumed where it is possible to explain the facts satisfactorily by observed agencies (Ibid), (4) when two rival hypotheses are in the field, a crucial fact or test (Vinigamaka, ratio sufficiens) is necessary, the absence of such a test is fatal to the establishment of either, (5) of two rival hypotheses, the simpler, i.e., that which assumes less, is to be preferred, *ceteris paribus* (Kalpana laghava *versus* Kalpanagowrava) (6) of two rival hypotheses, that which is immediate or relevant to the subject matter is to be preferred to that which is alien or remote, (7) a hypothesis that satisfies the above conditions must be capable of verification (Nirnaya) before it can be established as a theory".

Methods of Ayurveda Strictly Scientific

It is as a result of such comparative study as I have attempted to indicate above, that I find myself in a position to give my whole hearted assent to the opinion of that erudite scholar, Brajendranath Seal, who, in his monumental work, "The Positive Sciences of the Ancient Hindus" expresses himself thus, in respect of the question under discussion — "What is characteristic of the Hindu scientific mind is that without being content with the general concepts of Science and a general methodology, it elaborated the fundamental categories and concepts of such of the special sciences as it cultivated with assiduity, and systematically adapted the general principles of scientific method to the requirements of the subject matter in each case. The most signal example of applied logic (or scientific method) worked out with systematic carefulness is the Logic of Therapeutics in Charaka, a Logic, which adapts the general concepts of cause, effect, energy, operation, etc., and the general

¹ B. N. Seal—*Positive Sciences of the Hindus*, page 233

methodology of science to the special problems presented in the study of diseases, their causes, symptoms and remedies."

The Authority of Scriptures.

It is objected that "though the ancient system reached the height of a systematizing, theorizing school of thought, it lacked freedom of individual action, essential to the pursuit of real science, and its evolution was prematurely arrested by an unscientific veneration for petrified dogmas."¹ No one who has not entered into the very soul of Hindu thought can appreciate what scriptural authority really means to the Hindu, and how two persons, paying the profoundest possible veneration to the same scriptural texts can yet interpret them in ways as diverse as the poles; a classical example that readily occurs to my mind is how all schools of Vedānta—from uncompromising duality (Dvaita) to absolute non-duality (Advaita) purport to be based on the same Vedic texts. The fact of the matter seems to me to be that, alike in Hindu Science, Philosophy and Religion, the amount of freedom of individual action and thought was practically unrestricted, in spite of the theoretical finality of scriptural 'authority'; true, the Vedas, were venerated by all as of paramount authority, but they denoted the eternal wisdom behind the texts than the spoken or written texts themselves, which were but the symbols for conveying that wisdom to human minds; hence the nature and extent of the knowledge conveyed by the texts to any individual, depended upon the receptive capacity of the individual himself, just as, by one and the same piece of poetry or music, one individual may be sent to profound sleep, and another to ecstatic rapture. So it was that the Vedic texts conveyed different philosophical messages to different types of individual minds; in some, the chord of Sāṃkhya was struck, in others, that of Yoga, and in yet others, that of Vedānta, and so on. So too in Religion the same texts serve as the one common Gospel of those diverse religious faiths that are all included in that one all-embracing Religion known as Hinduism: Science too is no exception to this rule; here, as elsewhere, that same symbol of Eternal Truth, variously called the Vedas, the Āgamas, etc., is laid down as the final court of appeal; the atomic theory of the Viśeṣhika may differ from that of the Vedāntin; but, each is an attempt—and a perfectly legitimate attempt—to interpret Truth exactly as each sees it, and who knows that all apparently different views are not merely so many different aspects, each true from its own angle of vision, and each contributing its own

¹ *Report of the Calcutta University Commission*—Vol. V. pages 57 58.

complement to the composite picture of Reality, much as certain microscopic individuals confined to the region of one or other of the spectral rays refracted by a prism may truly describe the parent ray, as each sees it, as red, blue, yellow, etc., while Reality is all this and much more? However this may be, Vedas, to the Hindu, means the Eternal Truth and loyalty to the Vedas no more restricts the freedom of action and thought of the Hindu thinkers than loyalty to Truth restricts the similar freedom of others. Whenever a thinker feels that the interpretation given by another to Vedic text is not correct or is opposed to experience, he does not in the least hesitate to say so, as a matter of fact, with some thinkers, such opportunities of demolishing another's view are never lost, and the demolition is done with such an obvious relish and piquant zest as to make it appear as though this was a pleasant pastime, loved for its own sake. Of course no orthodox pandit would admit that the Vedas could be in error, any more than any one else could admit that truth was in error, all that he claimed to do was that previous commentaries and interpretations of the texts were wrong and that his commentary was more in conformity with the truth of the texts than any other, in other words, differences of views were expressed through commentaries of the texts and not by altering the texts themselves. Considering how easy it was for every disinterested voice to quote scriptures in its support, it does not appear to me that the tacit recognition of the scriptures as the Eternal Truth has hampered the freedom of action and thought among Hindu thinkers, to them 'the authority of Scriptures' holds more or less the same position as Truth to others, when the latter differ among themselves they do so in the name of that one and the same Truth' the quest of which is the common goal of all. The case is very similar with Hindu thinkers when they differ, as they frequently do, all appeal to and speak in the name of one and the same supreme authority viz 'Scriptural knowledge' which, to them is the same as Eternal Truth. The differences arise because Hindu thinkers differ in their interpretation of 'Scriptural knowledge' just as much as, or even more than, Western thinkers, in 'their interpretation of Truth' or Reality'

Considered in this light, it is easy to see that what the Hindus call "Shabda Pramanam" is worlds apart from any blind 'Veneration for petrified dogmas'. Veneration, undoubtedly there is, and in abundance, but, it is for the *words of Apikas* or Masters of Wisdom and not for the dogmas of others—much the same sort of veneration that a tyro in Physics cannot help show

ing to the authority of such a master as a Bose or a Thomson or a Raman. The previous records of these master-minds in contacting and sensing Truth are so rich and ours so poor, that we willingly accept their guidance; and it is well that we do so; it is well that reverence for wisdom should ever dwell in us, and grow from more to more, as more and more of knowledge is vouchsafed to us. It seems to me that the strong objections which Western Scientists have held against the Hindu Shabda Pramana is due to its being the subject of a very unfortunate mistranslation as 'authority'. Now, the word 'authority' to Western minds is an anathema; to them, it is reminiscent of that dark period when 'authority' would accuse even a Pope of having commerce with the devil if he ventured to use a novel instrument like the compass. In their minds, 'authority' conjures up visions of those days when the sterilizing torch of 'authority' sought to burn away the tender seed of Science which Galileo planted at the risk of his life; and naturally enough, when they talk of 'authority', it is as though it were in eternal conflict with what we call 'Reason'. The sort of 'authority' that is depicted here is poles apart from the sort of 'authority' which the Hindu Shabda Pramana denotes. Nowhere perhaps is the tyranny of mistranslations more on evidence than in such cases where a word denoting a willing acquiescence in the authority of the words of those experts who are masters of knowledge and wisdom, is construed to mean an unmeaning 'veneration for petrified dogmas'. Here in India; notwithstanding the homage universally paid to 'scriptural authority,' differences of views have widely prevailed and been freely discussed. Nobody ever thought that if the great Shankaracharya disagreed, as he did, with the view of Evolution as propounded by the sage Kanada, he, thereby, set at naught the Shabda Pramanam; nor did it prevent the Acharyas, Shree Ramanuja or Shree Madhwa from propounding their doctrine of Vishistadwaitam (qualified non-duality) and Dwaitam (duality), as against the view of Shree Shankaracharya himself. Indeed, I do not know if there is any other people in the world among whom freedom of thought has been more tolerated, fostered and respected than among the Hindus. We are told that in the great ancient Indian University of Benares, the very home, if there was one, of orthodox theism, students and teachers alike, were at perfect liberty to discuss and propound, as indeed they sometimes did, even atheistic doctrines like those of the Charvakas. Even in comparatively recent times as that of the great Adwaitin Madhwacharya, we find that in his discussion of the sixteen

religio philosophical faiths of his time, Charvaka Darshana (Atheism) has a chapter devoted solely to it, equally with Buddhism, Jainism and his own philosophy of Advaitism. Here, in India the binding force of Shabda Pramana or 'authority' is all from within none else compels. Here is no 'blind' veneration forced from without, but merely a willing recognition of inevitable fact that where we are dealing in the domain of experts, those who are not 'experts' have perforce to recognise the authority of those who are. Here is no conflict of 'reason' and 'authority,' although some people have needlessly distressed themselves over such a bogey. It is not that the 'experts' have arrived at their conclusions, without adducing reasons for the same, for reason is there and always, but it is too recondite to be understood by non experts. For instance, how many of us can understand the chain of reasoning adduced by Einstein to build up his Theory of Relativity? Any expert Physicist can accept it or reject it, and state his reasons for doing so, but I can only accept the 'authority' of either Einstein or his opponent, till I become myself an expert capable of reasoning on these topics, but, even here I have to use my reason for accepting one or other of these experts as my 'authority', and what guarantee is there that my reasoning is always right reasoning? I may have confounded my prejudice for 'Reason' and accepted the 'Authority' of that expert to whom I had some partiality but who was really in the wrong. If only we recognize that 'authority' does not always mean perfect authority, just as 'reasoning' cannot always be equated to 'right reasoning' there will be no difficulty in understanding and appreciating the role played by Shabda Pramana (or the authority of the words of the wise) in Hindu Scientific and Philosophic thought. All that it says is that, in the region of expert knowledge, those who are novices have to accept the 'authority' of those who are experts. While this undoubtedly acts as a wholesome and conservative check against ignorant and upstart tyros flooding the world with their immature views, it, in no way, restricts the growth of independent thought, nor does it prevent experts from differing from one another, if they find cause to do so, as a matter of fact, the course of Hindu thought abounds in numerous instances of 'authority' differing from 'authority'. In both *Charaka* and *Sushruta*, the two classical works of Ayurveda there are many examples of such differences of views, propounded with rare acumen and felicity of expression, and discussed in thoroughly scientific style and Ayurveda having long ago reached as the Calcutta University Commissioners truly observe,

"the height of a systematising and theorising school of thought" still holds a unique position as a system of strictly logical and scientific thinking. That its evolution, more especially on the practical side, was "prematurely arrested", is no doubt true; but, to attribute it to "an unscientific veneration for petrified dogmas" is, in my humble opinion, to reverse the role of cause and effect. "Unscientific veneration for petrified dogmas" has undoubtedly existed among some later day Pundits; but, that is the *result*, not the *cause* of arrested evolution and progress which has, in the recent past, overtaken not only Ayurveda but ancient Indian thought generally. When decay of learning sets in, the great masters capable of scientifically expounding their doctrines become few and far between; and followers, imbued with more reverence for their masters than learning in their teachings are apt to make dogmas out of the doctrines propounded by their masters. For causes however—political and other—of this general decay of Indian Learning and Arts, we must look deep into the records of history.

" Ayurveda 'Mixes up' Science, Philosophy and Religion "

Another objection which critics raise against Ayurveda is something to this effect; the source of Ayurveda are scattered among such works of Philosophy as the Nyaya and Samkhya Darshanas, and such works of religion as the Vedas, Puranas and Itihasas; this mixing up of Science with Philosophy and Religion is unscientific. Now, this charge is quite true; in Ayurveda, as in Hindu thought generally, these several branches of study are over associated with one another; but, when we go to the root of the matter, is it really possible to isolate and shut them off in watertight compartments? Has not the Hindu view found its supporters among some of the foremost of Western Scientists themselves? Karl Pearson is a name to conjure with, in the field of modern Western Science; yet, we find him expressing himself thus: "the scope of science is to ascertain the truth in every possible branch of knowledge; there is no sphere of inquiry which lies outside the legitimate field of Science. *To draw a distinction between Science and Philosophy is obscurantism.*¹" Strong language this; but none too strong, considering the fact that the notion of confining Science, Philosophy and Religion in isolated, water-tight compartments is still the fashion of the day. I quote Karl Pearson merely to show that the idea of viewing Science, Philosophy and Religion—in fact all branches of knowledge—as one connected

¹*Grammar of Science*, third edition, Volume 1, page 37.

whole instead of as so many dissociated entities is not altogether foreign to Western thought. In Ayurveda however, as in Indian thought generally such a notion is almost an axiomatic proposition accepted by everybody as a matter of course. If we are to understand Ayurveda as Ayurvedists know it (and such an understanding is necessary for every would be critic) we must equip ourselves at least with a general idea of their fundamental conceptions such as the one we are now considering.

Since this note was written over quarter of a century ago much has happened in Modern Science that has made some of its leading lights to recognise that it is not possible to keep Physics Metaphysics and Philosophy in water tight compartments as they did before and to intersperse or conclude their contributions and books on the Physical and Biological Sciences with open and direct references to Metaphysical Philosophical and Religious topics. A citation from a leading Indian Scientist in India may be sufficient to serve as an example. At the opening ceremony of a Research Institute in Northern India on 19th April 1946 Sir Shanti Swarup Bhattacharya is reported to have stated as follows. I am particularly happy that he (Dr Abdul Ahad the Director of the Research Institute) has quoted in his speech these last words in a recent broadcast of mine on the subject of Scientists Utopia. It looks certain that in the Utopia of Scientists God and Science will be brought into a fertile Union in which the idea of God instead of being diluted will be enriched. This is my conviction and also the belief of a great many top rank Scientists of the world. The Scientist of to day is not the hot headed blasphemous and conceited fellow which he used to be sometime ago. Physics has merged into Metaphysics. The pride of the Scientists has been humbled to such an extent that he no longer contends that Science can explain even all that meets the eye. One reason why many students of *Modern Science even in India still tend to keep Science Metaphysics Philosophy and Religion in water tight compartments* may perhaps be due to the fact that under the present system of Education in India every one who has a Science Degree is not necessarily a Scientist as is well brought out in the following Review (that has appeared in the Current issue of *The New Review of Calcutta*) relating to a recent publication entitled *The Impact and Value of Science*.

This is a case for Science convincingly put. Seven neat essays all showing how such fundamental activities of man as Industry Politics War Education Religion and Leadership can

be effectively and more successfully conducted under the aegis of Science. The motif throughout is that the scientific mind being of a 'ranging, imaginative and a disciplined' type, is best suited to guide the destinies of man. The scientist is mentally mature. Science however is not technology. It is a system of thought, a philosophy and a guide to maturity. It is a living thing of joy and beauty intimately interwoven with the affairs of life and yet distinct from them. Again, *everyone that has a science degree is not a scientist.* (Italics mine). The way our science graduates are turned out is far from being the right way of producing minds that have inculcated in them the principle of scientific methodology. Objectivity of outlook, restraint in judgment, imagination and the ability to think clearly and culturally, is not the mark of what we ordinarily call a 'Scientist.' A scientist, *comme il faut*, besides the acquisition of the scientific methods, should have a humanistic background which will broaden his outlook and deepen his personality. One would suggest to the educationist that living as we are in a scientific age, and cognizant of the methods of science, science teaching should be, from an early stage, an important feature of our education. Genuine scientific habits, which imply all that is true and beautiful in the human mind, acquired from youth, will be carried into life and leaven all activities. They can be carried into economics, politics and above all stabilize the tottering minds of the world's leaders."

Whatever may be the view of the average possessor of a Science Degree, the notion of the intimate association of Philosophy, Religion and Science is almost an axiomatic proposition in Hindu thought and meets us at every turn. To understand this position, we must first realize that, to the Hindu, 'Philosophy' was not a matter for mere speculation or intellectual edification; from his standpoint, no subject of inquiry was worthy of study, unless it helped the student to so regulate his life as to lead him to that state of perfection called Moksha. The modern Western conception of Philosophy as a pure speculative, theoretical study dissociated, as it were, from the actual problems of life had no place in his scheme of life; his justification of philosophy was not merely its excellence as a theory or speculation, but its intense practical value in regulating one's daily life; in other words, the great value to him of philosophy was that it served as the basis of certain ethical rules and physical practices, broadly included under the term 'Religion,' although modern Westerners would label some portions of it as 'Ethics' and others as

'Science' It may perhaps be better, if I illustrated this point by an example, in that well known work, *Sarva Darshana Sangraha*, written by the learned Philosopher Premier Madhawacharya, there is a discussion of the tenets some sixteen religio philosophical faiths of India, each discussion occupying a chapter, Here one finds that, along with Buddhism, Jainism, Dwaitism, Adwaitism Vishistadwaitism, etc., there is specific mention of *Raseshvara Darshanam* (Chemistry) discussed in a chapter all by itself. To the modern Westerner, this is mixing up Science with Philosophy and Religion, but, see what it means to the Hindu, he argues thus the one supreme object of Life (or *Purushartham*) is to attain that state of Perfection known as Self-Realization or *Mukti*, thus freeing oneself from the wheel of births and deaths, now, the study of chemistry helps me to achieve this object, by intelligently using mercury and other chemicals in the healthy dietetic and other regulations of my physical and other bodies, here we see at once how the philosophy (if we may say so) of Chemistry is indissolubly associated with the Science of Chemistry, and with certain ethical and physical practices, broadly included under the name of 'Religion'—the Religion if you please, of Chemistry (*Raseshvara Darshana*) As in Chemistry, so it is in Mathematics, Grammar Exegetics, *Ayurveda* or any other branch of study, the philosophical aspect of every one of these is intimately and indissolubly associated with the appropriate Scientific and Religious aspects Take, for example, a system like the *Yoga* of Patanjali it has (or rather is) a philosophy based on that of the *Samkhya*, but with the addition of the conception of *Ishwara* it is also a Religious discipline, teaching the aspirant to achieve Self Realization through the eight-fold method of *Yoga*, which includes the due observance of certain ethical rules and physical practices, then again, it is also a Science—pre eminently, the science of psychology, because its religious discipline is largely concerned with the control of the modifications of the mind Thus it is that every system of Indian thought is not merely a philosophy to be intellectually appreciated, not merely a science for explaining the facts of experience but is also a Religion to lived and not merely believed—so direct and immediate is its bearing on the life that is to be lived and the discipline that is to be practised, in other words, every system of Hindu thought is at once Philosophy, Science and Religion, all in one and one in all. Considered in this light, it may not be so difficult to understand why *Ayurveda* draws so freely from *Samkhya* and other

Darshanas, which the Westerners classify as 'the Philosophies,' as also from Tantras and other works, which they would designate as distinctly 'Religious' treatises. It may perhaps be better if I illustrated the need and the validity of such borrowings by a reference to the similar borrowings of modern Western Medicine

Scientific validity of the Hypotheses of the Darshanas.

We are all aware that in the curriculum of studies of modern Western Medicine, there is always a provision made for what is sometimes known as 'preliminary scientific study'; a working knowledge of the Laws of Physics, Chemistry and the like is demanded of every student who applies for training in Western Medicine. This preliminary study serves at least a two-fold purpose; firstly, it is calculated to give him a training in scientific method and to engender in him that particular intellectual attitude known as 'the scientific frame of mind'; secondly, it will help the student in understanding many things in medicine, the reasoning of which it would be difficult for him to follow without such preliminary study; for text-books and teachers of medicine tacitly assume and apply many of the Laws of Physics, Chemistry, etc., without attempting to prove them; hence a preliminary working knowledge of the Laws of Physics, Chemistry, Biology and the like is laid down as essential for every student of modern Western Medicine. Exactly similar is the position held by the Nyaya, the Viseshika, the Samkhya and other Darshanas, in respect of Ayurveda. If Western Medicine finds it necessary to assume tacitly the theories propounded by our Physicists regarding, say the constitution of the atom and the molecule, Ayurveda finds it equally necessary to assume the formulæ governing the evolution of the atom as laid down by, say, the Samkhyas. The assumption in either case is quite legitimate and scientific. I am aware that it is sometimes argued that if the claim of Ayurveda to be a science is to be admitted, it must cease to talk in terms of Nyaya, Samkhya and the like; scientific orthodoxy could go no further. It is as if the Ayurvedists said that if Western Medicine is to be reckoned as a Science it must cease to talk in terms of those 'narrow' conceptions (narrow from their standpoint) which Modern Physics, Chemistry, etc., propound; this attitude is just as unscientific as the other. In so imperfect a science like Medicine, where so many theories have had their little day and ceased to be and are soon replaced by others yet newer, or may be, older ones in a newer garb, who shall say this alone is true, and that other is false? Let us, for one moment, transport ourselves in thought to the days when we

were many years younger, say, to the days when the Daltonian notion of the indivisible chemical atom prevailed among Western Scientists. Let us also imagine that a Hindu Samkhya or Viseshika philosopher working side by side with us, told us that the chemical atom far from being indivisible, was really very much divisible, enclosing within itself systems within systems and took us through the whole range of his evolutionary chain, from the Trasarenu to Dvanukas Arambhala Paramanu and so on, back and back to Tanmatras, Bhutadi and Mula Prakriti. What should be our attitude as students of Science, to our Hindu Samkhya Scientist? Shall we say to him that our scientific speculation holds that an atom is indivisible and therefore his speculation, which holds to the contrary, has no claim to be called 'scientific' at all? or shall we rather say "It may be so, but, at present, I see no cause to change my view and prefer to work with my own speculation if you prefer yours so be it. Where knowledge is so imperfect, proof is difficult and denial is folly." If we had taken the first attitude, which to my mind is quite unscientific, we should have now to eat our own words and agree that our once indivisible atom is now divisible, if we had taken the second, we could accommodate ourselves to the present view with perfect grace, this is the attitude which I submit, ought to characterize the truly scientific man. I therefore hold that it is quite as scientific for the Ayurvedists to assume the truth of Samkhya, Viseshika and the like, as it is for the student of Western Medicine to assume the truths of modern Physics, Chemistry and the like.

If only our early European oriental scholars to whose immense labours in the field of Sanskrit research we owe a debt which perhaps we can never repay, had not labelled our 'Shad Darshanas' as the six schools of 'Philosophy' but explained and popularized the notion that with the Hindus all knowledge was one and indivisible, that facts of Science, Philosophy and Religion could not be cribbed, cabined and confined in separate watertight compartments and that therefore the province of their 'philosophies' was wide enough to include science religion and all else that is the subject or object of knowledge, then perhaps due attention would have been paid by our Western Scientists to those portions at least of these 'Philosophies' which deal with 'Science', and the world at large would have been made familiar much earlier with certain notions of Physical and Psychological Sciences which have now burst upon them almost with revolutionary suddenness—such notions, for example, as the conception of an atom as a

highly complex 'system within a system' and the existence of dream-state (now fairly well recognized in the West) and other higher states of consciousness (not yet recognized by Western Scientists.) It is of course arguable that these notions were merely the happy speculations of a highly imaginative race; it may be so; but, where such speculations have the knack of forestalling the most recent discoveries, it is, I submit, worth our while to treat these speculations with becoming respect and regard them, at least on the footing of provisional or tentative hypotheses. To be accepted as proven theories, much more of course, will have to be done. The conclusion must be shown to proceed strictly logically from the premises assumed, to *explain* satisfactorily the several facts of experience to which they relate, and to *work true*, when it is practically tested by experiments, or its predictions are put 'to' the test of verification. So long as Ayurvedists are agreeable to work along these lines they are at perfect liberty to make their own assumptions and advance their own hypotheses; and it is not for others to lay down arbitrarily 'thus far and no further.' It is as unscientific for the Western Scientist to say that his Hindu brother should not assume such and such a premise, as it would be for the Hindu Scientist to say that his Western brother should; and this proposition remains fundamentally true even though it is proved later on that, as a matter of fact, the particular assumption and the particular conclusion based thereon were wrong wholly or in part; for, as I have stated more than once, a proposition is admitted to be scientific, not because there is any finality about its conclusions but because such conclusions are reached by the use of the scientific method. If that were not so, the writings of even the great Newton and Darwin would have to be classified as 'unscientific' because a later generation found that their views on 'Light-propagation' and the 'Origin of Species' respectively had to be challenged or modified. The fact of the matter seems to be that in no science is it possible to do away with assumptions altogether; any attempt to do that would mean the proving of every proposition that is advanced assuming nothing, or taking nothing for granted; and this would inevitably mean that every inquiry would ultimately work back and back to the dead wall of first or final causes and stop there; being unable to go any further. Hence it will not do for us to go on asking at every step the futile question, 'But, how do I know that the premises are correct?' The inquiry legitimate in its proper time and turn; but should not be made prematurely. Even a so-call-

ed exact science like Geometry cannot afford to be without its premises—its axioms and postulates, which are not proved but 'given' or taken for granted, not only so, we should also be prepared to be satisfied with premises which are only approximately or partially true. Let us take some examples from an 'exact' science like Geometry. If the postulates and axioms of Euclidean Geometry worked true in all cases we should have three angles of a triangle always equal to two right angles but as a matter of stern fact Clifford found that in the case of great triangles, there may be a difference of as much as 10. Similarly, if, in Euclidean Geometry it is taken as an axiom which requires no proof that two parallel straight lines could never meet, Gaussian Geometry would actually prove to you that they do, if produced sufficiently far, so too, if Euclidean Geometry meticulously deals with straight lines and plane surfaces Riemann's Geometry would teach us that there can really be no straight lines or flat surfaces in nature whatever appearances and Euclidean Geometry may say to the contrary, but do we, for these reasons consider Euclidean Geometry unscientific or decline to make use of it for all that it is worth? No, most assuredly no, unless we are so unwise as to deny ourselves a useful avenue of knowledge. Let us keep these facts well in our minds when we deal with Ayurveda. let us remember that no science can afford to do away with premises altogether—not even with such as are known to be true only partially and not wholly, let us therefore be wiser than setting up any unscientific limits to the perfectly scientific right of Ayurveda to advance any premises it wants to. Unquestionably it is our right as it is our duty to examine the validity of the premises later on as also to see how far their conclusions follow strictly logically from their premises how far their theories offer satisfactory explanations for the diverse phenomena of health and ill health, and how far the practices based on those theories work satisfactorily when applied to problems of preventing and curing diseases. All these inquiries are perfectly legitimate in their proper time and order meanwhile let us accept the premises tentatively and pass on to study the general principles of Ayurveda as Ayurvedists know it.

Preliminary Scientific Study in Ayurveda

THE NEED TO LEARN THE EXACT MEANING OF TECHNICAL TERMS

Alike in Western Medicine and Ayurveda a preliminary knowledge of certain fundamental Laws of Physics Chemistry, Biology, etc, is essential for a proper understanding of the

science of Medicine. Hence it becomes necessary for me to preface my discussion of the subjects of Medicine proper by a brief reference to certain fundamental theories which form the bases of Ayurveda. Before I do so I have to make a little digression regarding the translations of Samskrit technical terms like 'the Panchabhuta,' 'the Thridosha,' etc., whose current mistranslations are misleading even wary and well-meaning critics. Professor Westaway mentions foremost in his list of qualifications for those who wish to master the scientific method that they 'must learn to get at the exact meaning of words'; and among the causes of our failure in this respect, he rightly makes prominent mention of the difficulty in 'translating from one language to another,' adding incidentally that our failure to get at the exact meanings of words is responsible 'for nine-tenths of the wrangling that goes on in all the Council Chambers' of the country.' If Indian Sciences and Philosophies are to be understood aright, it is necessary for us to realize this difficulty of translating from one language to another, and to learn to associate with Samskrit terms the exact connotations associated with them by Samskritist professors of those subjects.

The Panchabhuta Theory.

Let us take, for example, the term "Panchabhuta," Prithvi, Ap, Thejas, Vayu and Akash, generally mistranslated as the five 'elements' Earth, Water, Fire, Air and Sky. Such a mistranslation naturally misleads people to say disparagingly of the knowledge of the Ancients that it was no better than to reckon the Earth and the rest as "Elements" while the veriest school-boy now knows from his knowledge of modern western science that they are not 'elements' at all but compound substances analysable into elements of various kinds. What the Ancients really meant by the term "Panchabhuta" was, of course, quite different from the elements of modern physics and chemistry—something beyond the elements and compounds known to them. "The five Bhutas stand for a classification of substances on the basis of their generic properties resulting, as the Sankhyas hold, from the structural type of their constituent atoms—a classification more physical than chemical or properly speaking chemico-physical, unlike the purely chemical classification of the so-called elements of modern chemistry. A Paramanu is a type of Atoms corresponding to each Bhuta class; and indeed one and the same kind of Paramanu may comprehend atoms of different masses, if only they agree in their structural type." Seal; *Positive Sciences of the Hindus* (1915 Edition), page 40

This classification is analogous to the classification of "the States of Matter," the three states solid, liquid and gaseous of Modern Science and two more which are not yet specifically designated therein as "states of matter" but which may be provisionally translated as "Radiant Matter" and "Ether" for want of better terms. That the states of matter should be not three but five and only five, follows strictly logically from the basic concepts of the Evolutionary Theory of the Hindus, according to which the five states of Matter—Prithvi, Ap, Thejas, Vayu and Akash correspond to the five senses viz, the senses of smell, taste, vision, touch and hearing respectively, the objective world of matter is comprehended subjectively by means of the five senses so far developed in Man at the present stage of his evolution, and the objective series of the five states of Matter and the subjective series of the five senses are both evolutionary products arising in parallel series from one common origin in Prakriti (The Material principle) at the level of Ahankar. We speak of five states of matter because we have so far developed five senses only to contact the world of matter and report to the Mind. If tomorrow we develop a sixth sense, we may speak of a sixth state of matter. This correlation of matter and senses is not quite foreign to Modern Western thought as may be gathered by the statement of the distinguished scientist, the late Sir James Jeans who has written "Matter may be defined as that which is capable of originating objective sensations—sensations which can be perceived by any one who is suitably conditioned to receive them—as, for instance, by sending rays of light into our eyes" *The New Background of Science*—1943 edition—Page 12. This correlation between Matter, Senses and the mind is, however, not developed in Modern Western Science to the extent and in the manner developed in the Ancient Wisdom of India where it serves to bring the knowledge of the Physical, Physiological and Psychological sciences into close inter-relationship with one another as parts of one integrated whole—that fundamental oneness where there is unity of all knowledge.

The Ayurvedic definition and analysis of Matter in terms of Panchabhutas is subjective—that is, related to the sense-impressions resulting from Contacts of Matter with the senses while the Western analysis according to the chemical elements composing it is objective. From a Philosophical standpoint, the subjective analysis provides the advantage and satisfaction of having a complete theory valid for all time (the attribute of

Sanatana) In the objective analysis of the West, we have to go on adding to our List of Chemical Atoms as new elements are brought to light by Scientific Research. For example, the chemical elements were all listed under eighty and odd names when this Memorandum was first written. Since then, the list is being added to so that we have now reached No 94—Plutonium. The subjective analysis has five ready made niches fashioned for all time, in one or other of which all things known in the past and present as well as those that become known in the future find ready accommodation. The enunciation of theories having this quality of Sanatana applicability for all time (past, present and future) is a general feature of Hindu analytical thought which strikes us throughout, as will be seen presently when considering the topics of Diagnosis and Treatment, Aetiology and Pathology etc, and will be dealt with at a little length under Aetiology where its comprehensiveness is a specially striking feature.

That the Panchabhutas stand then not for "elements" of our Physical Sciences as the mistranslation of the term would have it but for the five types or classes of objects in our material Universe correlated to the five senses by means of which we subjectively contact our objective Universe, will become even more clear when we consider the Panchabhutic classification of Drugs where the Ayurvedists have added to the Darshanic description significant points correlating the general properties and actions on the human system of each class of Drugs to the particular Bhuta predominant in the Panchabhutic constitution of the particular class concerned.

A Queer Demand

The demand is frequently made by many followers of the Modern Western Medicine that if such Ayurvedic Theories like the Panchabhuta and Tridosha Theories are to be acceptable as valid then they should be explained to them in terms of modern Western Science and in a manner that should be clear to persons of ordinary intelligence not proficient in or acquainted with even the elements of the Darshanas or Ayurveda. Such a demand is likely to provoke a counter demand by the followers of Ayurveda that if modern theories relating to the structure of Matter or the Atom or constitution of Light, Electricity and Energy generally are to be accepted as valid, then they should be explained in terms of their own sciences and in a manner that should be clear to persons of ordinary intelligence not proficient in or acquainted with even the elements of modern

Science In the first place, it is not possible to explain or go into the root of the fundamental ideas underlying modern views on these topics without referring to such highly recondite concepts as, for example 'the principle of Relativity' and 'the Quantum theory,' for the proper understanding of which a high standard of mathematical knowledge is a necessary pre-requisite, and even then, these concepts are, in the words of the distinguished Scientist the late Sir James Jeans "difficult to grasp and still more difficult to explain" Ordinary text books on Physics say very little on such recondite concepts they deal only with topics like Properties of Matter (in fact some text books on Physics bear the title 'Properties of Matter') which are within the comprehension of our ordinary school or college students Exactly similar is the case with the Panchabhuta or Thridosha Siddhantas of Ayurveda which to use Jean's words quoted above are difficult to grasp and still more difficult to explain' for their proper understanding, a scholarly knowledge of the Darshanas is a necessary pre requisite Even with such scholarly knowledge it may require concentrated thinking or meditation for a period—long or short according to the capacity of the individual concerned—before the real import of such a concept like the Thrigunas (of which I shall say something presently in regard to its relationship to both Panchabhuta and Thridosha Siddhantas) begins to dawn upon our minds but the difficulty of grasping and explaining such recondite theories does not come in the way of their ordinary practical applications, for just as ordinary Text books on Physics deal with 'Properties of Matter' so do ordinary Text books on Ayurveda deal with the properties of the Panchabhutas and the Thridhatus and all these are within the comprehension of a person of ordinary intelligence who approaches the study of these topics with the requisite preliminary study For example the distinguishing features of the three Dhatus—Vata, Pitta and Kapha—both in health and in health are given in all standard Text books of Ayurveda and in great detail in some books, but to know their properties or effects does not necessarily mean we shall be able to define them or say exactly what they are in reality This is the case with certain fundamental ideas as, for example, 'Electricity' so familiar to us and so much talked of at the present day From a study of its properties and its effects we seem to sense or infer its presence without being able to define exactly what it is As stated by the distinguished physicist and Nobel Laureate Sir George Thomson in his book on *The Atom* (1947 Edition) page 5 It is becoming

more and more impossible to define Electricity because it seems rather to be the fundamental idea in terms of which everything else must be explained and so cannot itself be explained without arguing in a circle. All that one can do is to state instances of what are regarded as Electrical effects and to argue by analogy from them." Similar is the case with the fundamental ideas of Ayurveda—with 'Vata', for example, of its 'Thridhatu triad'. We can state instances of what are recognized as Vatic effects and then argue or infer by analogy the presence of 'Vata.' This is necessary for purposes of Diagnosis and Treatment. It is fair to demand that the distinguishing features of 'Vata' and instances of what are regarded as 'Vatic' effects—both in health and ill-health—be stated. As I have said above, this demand is met in all standard works on Ayurveda; but to go further and demand that 'Vata' etc., must be exactly defined or the Thridhosha Theory must fall is a queer demand. This is like demanding that Electricity must be defined or the Modern Electronic and related Theories must fall. The answer to the queer demand relating to 'Vata' would be similar to the answer of Sir George Thomson in regard to Electricity, namely, "it is becoming more and more impossible to define Electricity."

As regards the question of interpreting or explaining the fundamental principle of Ayurveda in terms of modern Medicine, I am certainly all in favour of it as will be seen from my note on the question which appears later on; but, as will be fully explained in that note, such interpretation will be subject to certain strict limitations because of the differences in the premises of Allopathy and Ayurveda. For example, the Dhatu-Triad (the thridhatu), Vata, Pitha and Kapha, represent in the living individual those universal and inseparable Thrigunas (the Guna triad), Rajas, Satwa and Tamas, hypostatized, according to preponderance of one or other Guna, into Life, Mind and Matter, or the Vitality principle, the Psychic principle and the Physical Matter principle. Orthodox Western Physiology deals only with the last and not as yet with the vitality or psychic principle. Hence while we may attempt some sort of equating at the level of physical matter known both to Ayurveda and Allopathy, there is as yet nothing in the latter in terms of which things at the levels of vitality and psychic principles could be explained. This consideration as well as the fact that principles of classification in the two (Allopathy and Ayurveda) are frequently different make it difficult to equate or interpret things in terms of one to one correspondence, though striking similarities in thought will present

themselves in the course of our studies. These are certainly worthy of fruitful study which I will proceed to illustrate presently, but, it is to be understood that *what is indicated is mostly similarity and not identity or cent per cent equating of the terms and concepts of the one in terms and concepts of the other*

Theories of Matter According to Modern Western and Ancient Indian Sciences Compared

We are aware that till not very long ago Western Science held that every material object could be analysed back and back till we reached the atoms of some eighty and odd elementary substances (now reckoned as 94 including plutonium), these atoms (literally uncuttable things) were so called, because they were all *considered to be simple bodies incapable of further division*. The modern notion however is that the atom is far from simple and indivisible being in fact, of so complex a structure as to resemble a solar system on a highly miniature scale, with a comparatively massive central proton sun (constituting the nucleus of positive electric charge) surrounded at fairly respectable distances by a varying number of electron planets (constituting the peripheral units of negative electric charge), nor does the complexity of structure end here, recent experiments have also shown that all the atoms of even one and the same chemical element may not be of one and the same kind in fact Dr Aston's experiments with many of our lighter chemical elements show that each of these elements is really not one element but a mixture of different elements known as 'isotopes', that is to say elements with the same properties but with different atomic weights

This was the position over twenty five years ago when this Memorandum was first written. Then it was a comparatively simple proposition with only two entities or particles, viz Proton and Electron but this simplicity is now gone we have now to reckon with seven or eight for recent investigations have postulated in addition to Proton and Electron, Neutron, Neutrino, Neutretto, Positron and Meson besides cosmic Radiation and 'Photon' as the quantum unit of radiation. It may be that all these particles are not really elementary in a fundamental sense future advances may show a new synthesis in terms of more fundamental and simpler conception as for example, by synthesizing them all under the three possibilities in regard to Electric charge viz positively charged particles like Proton or Positron negatively charged particles like Electron and Neutral particles like Neutron. It is not clear, says Jeans which of the various

particles are ultime and indivisible and which are composite. For instance, many physicists have thought that a Proton may be a composite structure consisting of a Neutron and a Positive electron in close combination; or again a Neutron may consist of a Proton and a negative Electron. A further possibility is that all such questions are meaningless; it may be that one set is just as fundamental as another. We have a certain amount of Mass and a certain amount of Electric charge in an atom; and the way we distributed them over constituent particles may be a matter for our own convenience rather than of absolute truth."—*The New Background of Science*—1943—pages 19 to 20). Under those circumstances and having regard to the fact that the ideas of Modern Science on this question are still very fluid, I have thought it better not to revise this part of the note at present but to leave it exactly as it was written over twenty-five years ago; because, the fundamental idea of a central sun or Nucleus (whether envisaged as Proton or anything else) and a planetary or peripheral system (whether envisaged as Electron or anything else) still remains valid for the purposes of this note.

Such then is the conception of matter according to modern Western Science; we can still conceive of the edifice of matter as being built up of some ninety "chemical elements"; but, we can no longer look upon these elements as simple elementary substances incapable of further division—no longer as some ninety kinds of bricks whereof the edifice is built; they are rather so many "brick-blocks," if we may say so all built up of the same two kinds of bricks, viz., the proton and the electron, it is doubtless true that these proton-electron bricks have first to be massed into some ninety kinds of brick-blocks which are then used in various ways in building the edifice of matter; but one brick-block (constituting, say, the atom of nitrogen) differs from another (constituting, say, the atom of oxygen) not in the quality of their constituent bricks, which are everywhere of the same two kinds only viz., proton and electron, but in the number and pattern of disposition of these bricks in each brick-block. In building the edifice of matter, different kinds of brick-blocks may be used, either singly or in combination for building different parts of the edifice; but however different one part may appear from another, they are all built up of the same two kinds of bricks, viz., proton and electron; and the moment we recognise this common basis of all matter, we are already on the high way to Alchemy. If, by some means, we can but shake up the arrangement of the proton-electron

bricks of the brick-blocks of the base metal like lead, into the proton electron arrangement constituting the brick blocks of a noble metal like gold, then verily, we have achieved alchemy which, by the way, has now become quite scientific and respectable, several stars of the first magnitude in our scientific galaxy are now hard at work in achieving the transmutation of elements and some brilliant results have been reported already, although they cannot, as yet, be reckoned as successful business propositions, but to morrow, even that may come to pass and if it does, it is some consolation to know that we are not now likely to denounce the successful wizard in this line as an infamous charlatan and cheat, we are more likely to go tumbling over one another to hail him as the greatest F R S of the day

Now, let us turn for a moment to Hindu notions on this subject. What do we find here? Ideas strikingly modern meet us from the very dawn of the history of Hindu Scientific thought the Paramanu which may be said to correspond to the atom of our western chemists has ever been looked upon here as complex in structure and never as a simple indivisible entity, the modern conception of an atom as being a complex proton electron system finds its parallel in Hindu Scientific thought from its very commencement, appearing all at once in its full fledged modernness without passing as in the West, through the stage of of positing a simple and uncuttable atom. We may then look upon the Paramanu as corresponding to the atom of our modern western chemists or to the brick blocks of our analogy, but with a difference which may be explained thus. Modern science teaches that though we have some ninety different chemical elements, yet the Atomic brick blocks of all of these are everywhere built of the same two kinds of bricks, viz, the protons and the electrons, according to the Hindu view also every Paramanu brick block is considered to be built of two kinds of bricks, viz, the central bricks of one kind of Tanmatras (i.e., Proto matters charged with specific energy of one kind, and corresponding to the modern scientists' Protons charged with positive electricity) and the peripheral bricks of another kind of Tammatras (i.e., Proto matters charged with specific energy of another kind, and corresponding to the modern scientists' Electrons, charged with negative electricity). So far both views seems to agree, at this point however, the Hindus have gone a step further, they consider that, corresponding to each of the five Mahabhutas (i.e. Prithvi and other "States of Matter") there is a specific type as it were, of proton electron bricks, in other words these are not one but five

types of proton-electron bricks, corresponding to the five "States of Matter" (i.e., to the five Mahabhutas, Prithvi and the rest). As regards the exact nature of these five types of bricks, there have been some differences of opinion among different schools of Hindu thought. Ayurvedic authorities like Charaka and Sushruta follow mostly the Sankhya view, and sometimes the Vedantic; I shall therefore make brief mention here of both of these views.

The Genesis of Atoms—The Vedantic View.

According to Vedantic Scientists, each of the five gross Bhutas (Mahabhutas) are derived from five corresponding subtile Bhutas (Sukshma Bhutas); these may be taken to correspond to the five Tanmatras of the Sankhyas which are, as I have stated above, proto-matters charged with energies of various kind—the proton-electron bricks, if we may say so, that go to build up the Paramanus (the Atomic brick-blocks) of the five gross Bhutas; the Vedantists hold that into the structure of the atom of every gross Bhuta all the five subtile Bhutas enter in certain definite proportions. In the evolution of the atom of any particular gross Bhuta, say, Mahabhuta Prithvi, the corresponding subtile Bhuta (in this case; Sukshma Bhuta Prithvi) acts as the central radicle (corresponding to the proton brick of Modern Science) while all the other four subtile Bhutas go to form the peripheral Electron-bricks of our Paramanu brick-block; the process of transformation of a gross Bhuta from the subtile Bhutas is technically known as Pañchīkarana (quintuplication) which is illustrated thus; "The Mahabhuta Earth, gross Earth-matter, is composed of four parts of subtile Earth-matter and one part each of the other forms of subtile matter. The Mahabhuta Vayu is composed of four parts of subtile gaseous matter and one part each of the other forms of subtile matter. And similarly with other Mahabhutas.

Hence if ak , v , t , ap , p , represent the five forms of subtile matter (Akasha, Vayu, Thejas, Ap and Prithvi), and AK , V , T , AP , P , stand for the corresponding Mahabhutas, we may represent the constitution of the Mahabhutas as follows:

$AK = ak-4 (v_1 t_1 ap_1 p_1)$ $ak-4$ being the radicle.

$V = v-4 (ak_1 t_1 ap_1 p_1)$, $v-4$ „

$T = t-4 (ak_1 v_1 ap_1 p_1)$, $t-4$ „

$AP = ap-4 (ak_1 v_1 t_1 p_1)$, $ap-4$ „

$P = p-4 (ak_1 v_1 t_1 ap_1)$, $p-4$ „¹

¹ Positive Sciences of the Hindus (1915 Edition)—Seal, pages 85-87.

As to the origin of these subtle Bhutas themselves, the Vedantic Scientists hold that each is derived from one which is higher in the scale, thus, subtle Prithvi comes from subtle Ap, which comes from subtle Thejas, which comes from subtle Vayu, which again comes from subtle Akasha; and all these subtle Bhutas are essentially Proto matters charged with specific energies of various kinds. From the above formula of Evolution it will be seen that, according to the Vedantic Scientists the contents of the central radicle is equal to the contents of all the peripheral units put together—a view that brings at once to our minds the notion of the Modern Scientist that the charge on the central proton is equal though opposite, to the charges on all the peripheral electrons put together but, there is this fact to be noticed, viz., that the peripheral electrons would, in this view, be not of one kind but of four different kinds, it would be very interesting to know if this view finds any support from Modern Science. In any case, it is the central radicle that is held to be the characteristic part. This is similar to the modern view that the nucleus is the characteristic part of an atom and that if you alter it, you get a new Atom or perhaps two as in certain cases of an "Atom splitting."

The Genesis of the Atoms—the Sankhya View.

According to Sankhya Scientists, the five kinds of Bhuta Paramanus (Atom brick blocks) are evolved from the corresponding Tanmatras by the process known technically as Samshritta Viveka (Differentiation within the integrated), the building up of each kind of Bhuta Paramanu requires two kinds of Tanmatras (Proto matter charged with energy)—one kind of Tanmatra acting as the central radicle, while another kind constitutes the periphery, as indicated in the following table

Types of Atoms	Tanmatras which act as the central radicle (corresponding to Protons of Modern Science)	Tanmatras which act as the peripheral units (corresponding to Electrons of Modern Science)
1 Akasha (Mono Tanmatric)	<i>Shabda Tanmatra</i> —(Proto matter charged potentially with the energy of sound impacts possesses potentially parispanda or Vibration energy)	<i>Bhutadi</i> —the root of all proto matters but it is not itself Tanmatra to pursue this inquiry further is to seek for first or final cause which is not attempted here
2 Vayu (Di Tanmatric)	<i>Sparsha Tanmatra</i> —(Proto matter charged potentially with the energy of Tactile impacts possesses potentially Vibration energy plus Tactile energy)	<i>Shabda Tanmatra</i>

3	Thojas (Tri- Tanmatric),	Rupa Tanmatra—(Proto matter charged potentially with the energy of Light and Heat impacts possesses potentially vibration energy plus Tactile energy plus Light and Heat energy.)	Sparsha Tanmatra
4	Ap (Tetra Tanmatric).	Rasa Tanmatra—Proto matter charged potentially with the energy of Taste impacts, Possesses potentially Vibration energy plus Tactile energy plus Light & Heat energy plus Taste energy)	Rupa Tanmatra
5	Prithvi (Penta Tan- matric)	Gandha Tanmatra—(Proto-matter charged potentially with the energy of smell-impacts; possesses potentially Vibration energy plus Tactile energy plus Light and Heat energy plus Taste energy plus Smell energy)	Rasa Tanmatra

Genesis of Atoms—Comparison with the Modern Western View

It is sometimes objected that, in the theories of Evolution of Atoms adumbrated above, there is a certain mixing up of "Energy" and "Matter"; that is quite true; but it cannot be helped; Modern Western Science itself is now being led to more or less the same position. When we are in the region of the practically weightless Electrons, we cannot help speaking of them, in terms of energy, that is, as charges of negative electricity, just as the Hindus speak of their Tanmatras as being charges of specific kinds of energy. Nowadays, we talk of Electrical "Energy" being stored, bought and sold, just as if it were an article of merchandise like petrol. When we fight for concessions and monopolies for exploiting oil beds in Persia, Asia Minor and elsewhere, our greed is really not for matter but for energy; for every gallon of petrol means not merely a definite quantity of matter but also a tremendous amount of energy locked up in it. This energy is of various kinds; it is only a part of its chemical energy that Western Science has learnt to make use of for work in our power-houses, mills, factories, and the like; but, this is as small as the tiniest drop in the ocean when compared with the stupendous quantities—immensities upon immensities—of energy that remain locked up in its atoms. Fortunately for the world, Western Scientists have not yet been able to release this energy; I say "fortunately" advisedly; for, when one reflects over the savagest and basest uses to which scientific knowledge was applied in the recent war, (this refers to the war of 1914-18) one shudders to think of the diabolical ghastliness that may result if people with the mentality of those responsible for the horrors of the last war come to possess the secret of releasing energies that may blow up continents as easily as they now do palaces and forts. (This was

the position in 1922 when this Memorandum was first written. Now, the immensities of nuclear energy have been released through "Atom splitting" and the manufacture of the Atom-bombs and applied to terrible destructive uses as at Hiroshima. When we have proceeded thus far in our comparative study, a question irresistibly presents itself before our minds and it is this: is this "Atomic Energy" of Modern Western Scientists the same as the Tanmatriic energy, which, as we have just seen in our discussion of the Hindu conception of the evolution of Atoms, plays so vital a part in the genesis of the Bhutaparamanu corresponding to our chemical Atom? The resemblance is very close, but, I must resist the temptation to hazard a definite answer, as it really requires a much better knowledge of both systems than what I have been able to gather.

I may, however, mention here that I discussed the matter with a profound and encyclopaedic student of Modern Physics, my friend Professor Yadunadan Prasad, M A (Cantab.), B S U. (Lond.), who was very much interested to see the remarkable resemblances that do exist between the ancient Hindu, and the modern Western conceptions of the structure of the atom. He suggested to me that Tanmatriic energy corresponded in all probability to the energy locked up in the Proton-electron nucleus of the atom and that, while the five types of Tanmatras or Pancha-Bhutas that the Hindus speak of has no definite counterpart in Modern Physics, an explanation for the distinction may perhaps be found in the "Quantum" theory of Modern Physicists: this is a very interesting and valuable suggestion, for, the very word 'Tanmatra' contains a definite suggestion of 'Quantum' or measure (Matra), but then it is not enough for our purposes to have only one kind of quantum or "Photon" as it is called, which would enter our eyes, contact our retinas and enable us to "see" or become aware of the sensation of vision. We need four more or five in all to enable us to become aware of the intimations of all the five senses namely senses of hearing, touching, seeing, tasting and smelling: for, the Ayurvedists hold that the type of Panchabhutic matter of each of our sense organs determines the kind of sensation we become aware of when the mind attends to the report of the particular sense organ concerned. We "see" an object by means of our eyes because of the presence therein of Panchabhutic matter of the type of Thejas (Luminant or Radiant Matter?) from which its predominant Tanmatra, viz., Rupa Tanmatra (bundle of Photons constituting Light?) move to enter our eyes and contact our retinas which report to our

minds the presence of Light from the objects seen and we, the subjects, become aware of the objects seen. Similar is the case with our other senses so that, in this respect, Jeans may be considered to be in the authentic line of ancient Ayurvedists when he writes in his book (*The New Background of Science*—1943 edition—p 12) that "In general, we may say that we experience the outer world through small samples of it coming into contact with our sense organs. The outer world consists of Matter and Energy samples of this outer world consist of Molecules and Photons", but, as I have said above it is not enough for Ayurvedists to speak of only one kind of quantum namely Photon. We need, in addition Akousticons, Tactons, Gustons and Olfactons if these neologisms are permissible and suitable. If that day comes when advances in Modern Science would enable us to speak of these in terms similar to those we now speak of in regard to Photons, then indeed, will have arrived the day when we can interpret in the language of Modern Science the teaching relating to this subject contained in an Aphorism of Charaka, the father of Ayurveda (Vide Charaka Sutrasthan Chap VIII) which summaries the teaching through correlations and correspondences shown below

"It is certain that there are

1 Pancha Indriyas—The five special Senses	Chakshus Senses of Vision	Shrotram Sense of Audition	Ghranam Sense of Smell	Rasanam Sense of Taste	Sparsanam Sense of Touch
2 Pancha Indriya Dravyas—The five matter types of Panchabhutas predominantly present	Thejas Radiant matter	Akash Ethers	Prithvi Earths (Solids)	Ap Waters (Liquids)	Vayu Airs (gaseous matter)
3 Pancha Indriya Adhasthanas—The five locations of the five special senses	Akshi Eye	Karna Ear	Nasika Nose	Jihwa Tongue	Twak Skin
4 Pancha Indriya Vishayas—The five Tanmatra objects (Quanta) apprehended by the five senses	Rupa Photon	Sabda *Audition or Akoustikon	Gandha *Olfaction	Rasa *Guston	Sparsa *Tacton

*If the above neologisms are ungrammatical or uncouth I beg to be excused for I know no Latin or Greek. If and when the neologisms the incorrect or uncouth terms will doubtless be replaced by correct and suitable substitutes.

5 Pancha Indriya Buddhis—The five perceptions } Chakshur Buddhi (Perception of Vision) and other Buddhis (like Shrotra Buddhi perception of audition etc.) These are Transformations of the five Sensations into the five corresponding perceptions when Sense objects Senses Mind and Atma are in tune

Such are the fundamental chemico physical notions of the Hindus with which we must be familiar if we are to understand Ayurveda aright. To my mind these show in certain points striking correspondences to the most recent teachings of Modern Western Science. In certain points the Hindus have gone even further in their speculations, will these conceptions also be justified by the future discoveries of Modern Science? It is rash to assert and difficult to deny but, when one realizes how some of these theories have been justified by the most recent events in Modern Science, one cannot help entertaining the feeling that, as some theories have already proved true the same may happen in the case of others as well. In this connection, it is also worth noting that the Hindu tradition about the origin of these theories refers to them as matters of direct observation and not of mere speculation. To understand how this comes about we have to realize that the methods by which the Hindus sought to cognize things beyond the range of our senses differed in one vital respect from the methods of the West. In Modern Science we seek to overcome the limitations of our senses by equipping ourselves with various *external* aids like the microscope, telescope the spectroscope the cardiograph and the like, the Hindus however preferred to effect the same results, not by providing their senses with external aids but by improving their own *internal* organs of sense, so that their range of perception may be extended to any desired degree. The way of effecting this improvement was by exercising the senses and the Mind in certain ways indicated in the authoritative teachings and taught by the Guru to the Shishya when he was ready for it physically morally and otherwise. It is claimed for instance that when they taught about the structure of the Atom they did not merely speculate in the matter but described things as they directly saw them. It is however recognised that as evidence of Direct observation it is of value only to those great seers who could see things for themselves and not for others, to these latter, it could be offered only as a good working hypothesis (or Kalpana) to which they are free to apply the various tests of a valid hypothesis before they accepted it. Herein lies the difficulty of the Hindu method because the perfecting of the senses to the desired degree can be achieved by only those few in our generation who are willing to pay the price of physical moral and other disciplines necessary for acquiring the Yoga Siddhis required for the purpose, and therefore the satisfaction of direct observation is not possible to the great majority of us. Hererin

lies the immense value of the external aids which Western Science provides us with; for, many of us can learn with comparative ease how to use them in checking and verifying things for ourselves; and this is an advantage of very great value.

Presentation of Ancient Wisdom in the Language of Modern Science.

For a proper appreciation of the treasures of Ayurveda by the present generation of intellectuals in India and the world at large, it is necessary to present them, wherever possible, in the language of Modern Science. This may be illustrated by an example with reference to the great work of our distinguished countrymen the late Jagadish Chandra Bose. With the aid of his marvellous instruments of great delicacy and precision he demonstrated to an astonished world that the response to stimuli of both the so called living (e. g. animals) and the so-called non-living (e.g. plants) were so strikingly similar as to suggest One common Life animating both Kingdoms of Nature; but he was never tired of proclaiming from the house-tops that what he demonstrated was nothing new but was only part of that ancient wisdom which our great forefathers taught many millennia ago on the banks of the Ganga. This is certainly true. Nevertheless, the fact that Bose demonstrated the truth of the ancient teaching by methods and through tools of modern Science did serve to carry conviction to minds of moderners in a manner and to a degree that was not realised before even by Indians familiar with the teachings of our Ancient Wisdom. It made the ancient teaching live once again in our minds as a living reality and be treasured as our precious and valued heritage—one of the many that diligent search and research by competent investigators of the present and the future may unveil in course of time. Such, for example, are the Panchabhuta Theory of Matter, already considered, with its Matter-Mind Parallelism and correspondence, (the Pancha Bhuta, the Pancha Tanmatra and Pancha Indriya relationship) which integrates in a wondrously illuminating way our Physical and Biological Sciences into a comprehensive and fundamentally inseparable unity of origin and evolution; the thridosha Physiology, Pathology and Therapeutics; the Sankhya-yoga Psychology—theoretical and applied; the Vedantic view of Prana (the Life-Principle); the Dravya-Guna-Virya-Vipaka Pharmacology and Therapeutics; and the like. Each century and generation has had its own interests, outlooks and methods of expression of the same basic ideas and fundamental conceptions. There was a time in this country when

Poetry was the medium of expression for all great ideas and teachings even in the domain of the positive sciences. The means and symbology adopted for expressing the same fundamental ideas and basic truths have varied and will perhaps continue to vary from age to age and generation to generation. It may even happen that these may not be expressed through the symbology of words at all whether of the spoken language or written literature but find expression through the symbology of Mysticism, Music, Painting, Sculpture, Architecture and the like. It is not often recognised or recognised sufficiently, that all words, spoken or written, are only symbolical—as symbolical, for example, as the lines and contours of the static Arts or the poses and gestures of the Dance, recital of Bharata Natya or other forms of the Dynamic Arts. When we feel thrilled, uplifted and transported to realms of rapture and ecstasy as we read a great literary classic it is not the words, the writings consisting of certain black lines on white paper that can by themselves produce the exalted result. The words and writings like painting and sculpture are but symbols suggestive of something far beyond themselves and capable of evoking in responsive minds something of the nature of the great thoughts and ecstatic experiences of the original authors, poets, philosophers, scientists, religious, mystics and other great creators of things of wisdom and grace, love and beauty. The same words and pictures (whether executed by pen or brush or chisel) which mean so much to cultured men and women educated in a particular way may mean nothing to others who are not so educated or not educated at all. Not dissimilar is the case with the fundamental ideas and basic truths of Ayurveda. They are written in a manner and on a background appropriate and natural to the intellectual and aesthetic atmosphere of the ages they were written for. Many of them may now appear quaint to many modern intellectuals whose language of expression and understanding is that of Modern Science. If we wish the treasures of Ayurveda to be understood and appreciated by students of Medicine and Science in Modern India and the world at large, we have to express them in an increasing measure in the language of Modern Science as far as it is possible to do so. The world at large and even intellectual India of the present day will not generally enthuse over the difficult task of attuning their minds to the manners and modes of expression natural to the intellectual atmosphere of the great days of the past when the treasures of Ayurveda forming part of our Ancient Wisdom and its precious Scientific heritage became enshrined in the classical works on

Ayurveda.~ Hence the need—the urgent need—for presenting the Ancient Wisdom, wherever possible and as far as possible, in the language and through the tools of 'Modern' Science, as was done by Bose in the manner already referred to. First things must come first. Research in the fields noted above is one of the first things to be urgently and immediately provided for. The field to be traversed is vast in extent and rich in content. On the speed and extent of the progress we make in this work and the associated work of compiling new text-books incorporating therein the valuable and necessary fundamentals of both Indian and Western Medicine depends the speed and extent of the progress we make towards our objective of achieving the synthesis of both Indian and Western Medicine into one unified and integrated whole, a subject which will be dealt with later on.

A Note of Warning

It is, however, very necessary in this context to sound a note of warning as to what should not be done. We should not torture Ayurvedic Texts to read into them Modern, Allopathic teachings through forced comparisons and fanciful interpretations. Where the import of the Ayurvedic Texts as understood in their ordinary and natural meaning is in harmony with the teaching of Modern Allopathy on a particular topic, well and good; we will do well to follow the lines of such fruitful studies and investigations. That would be a real service to both Ayurveda and Allopathy. Where, however, the harmonising of the two teachings is not yet possible in regard to any particular topic when the relevant Ayurvedic texts are understood in their own natural and ordinary meanings, we must not proceed to have recourse to forced and fanciful interpretations as though the final test of the validity of an Ayurvedic teaching is its agreement with the Allopathic teaching on the topic. The ultimate test as to which of the two different teachings on any particular topic should be more acceptable to us should surely be not what label—Allopathy or Ayurveda—it bears but which of them explains better the facts of experience and works better when applied to problems of health and ill-health. The reason why I am making a specific reference to this aspect of the question is because I see, now and again, attempts being made to read modern Western teachings into Ancient Indian writings by a process of forced interpretations as, for example, when the nomenclature of modern bacteriology is read into certain Ancient texts of the Vedas, or when certain fundamental concepts such as Vata, Pitha and Kapha of the *Thridhatu*

Siddhanta of Ayurveda are equated to certain specific things of Western Physiology. In referring to analogous attempts relating to "Chakras", the late Arthur Avalon (Sir John Woodroffe) observed as follows in his book on "Serpent Power" (Kundalini Shakthi) — I desire to add that some modern Indian writers have also helped to diffuse erroneous notions about the Chakras by describing them from what is merely a materialistic or Physiological standpoint. *To do so, is not merely to misrepresent the case but to give it away, for physiology does not know the Chakras as they exist in themselves—that is as centres of consciousness—and of its activity as Prana Vayu, Sukshma or subtle Vital force, though it does deal with the gross body which is related to them. Those who appeal to Physiology only are likely to return non-suited.* Every word of this is as true of concepts like Tridhatu — Vata, Pitha and Kapha as of the Chakras.

Physiology and Anatomy

The Tridhatu Siddhanta

Meaning of the terms "Dhatu", or "Dosha" and "Mala," The three Dhatus known as Vata, Pitha and Kapha are the three elementary and fundamental units or principles on which the building and sustenance of the body depend. Hence it is that they are called 'DHATUS', which literally means 'SUPPORTERS'. When they are in normal equilibrium, it is health, and ill health when they are not, in which case the 'Dhatus' are technically known as 'Doshas' literally 'Faults', this is because in this condition they give rise to 'Faults' or ill-health in the body. When normally disposed, the Dhatus are in their 'Prasada' (or pure) state, fit for the building and sustenance of the body, when abnormally disposed, they are in their Mala' (or impure) state, fit to be rejected and thrown out of the body as Kitta (Dross). When looked at from this standpoint of 'effecting impurity' (Malinikarana), they are also spoken of as 'Malas' (impurities). These are the primary meanings of the terms Dhatu, Dosha and Mala. The term "Dhatu" has also a secondary meaning when the phrase 'Sapta Dhatu' is used. In this context, it means the seven elementary tissues of Ayurveda viz Rasa (Chyle), Rakta (Blood), Mamsa (Muscle) etc. which will be dealt with later. It is not at all difficult to know from the context in which meaning the term 'Dhatu' is used in any particular Case.

Functions of the three Dhatus

It is held that the Dhatus exist in the Human body in two states, viz, the Sthula or the gross and the Sukshma or the

Subtile state, Vayu, however, being, according to some authorities, always subtile. In their subtile states, they are Ateendriyā—that is to say, beyond the normal cognition of our senses. How then are they known? They are known, both in their normal and abnormal states by the consequences of the actions for which they are responsible. Thus according to Charaka (Sutrasthan; Chapter 18), Pittha, Kapha and Vata are respectively responsible for the following:—‘Vision’ (as opposed to perception which is due to Vayu), digestion, heat-production, hunger, thirst, softness and suppleness of the body, lustre, cheerfulness and intelligence are due to Pittha in its normal state. Snehanam, Smooth working of joints, general stability of the body, general build, potency, strength, forbearance, courage, and greedlessness are due to Kapha in its normal state. Enthusiasm, inspiration and expiration, voluntary actions like talking and walking, the due circulation throughout the body of its supporting elements like chyle, blood, etc. Ayurveda speaks of the circulation not only of the blood as in Modern Western Medicine but also of other Dhatus used as the seven dhatus and the due discharge from the body of its excretory products, are due to Vata in its normal state. These functions of Vata are further elaborated thus by Charaka in the Sutrasthan, Chapter 12. Vayu upholds all the supporting constituents and their due circulation throughout the body. It exists in five forms, viz, Prana, Udana, Samana, Vyana and Apana. It is the urger of all voluntary movements, great and small, the producer of restraint as well as concentration of the mind, the stimulator of all the senses and the carrier to the mind of all sense impressions, it holds together the various elements of the body in their proper form and maintains the cohesive unity of the body as a whole; it brings about speech: it is the basis of sound and touch, as well as the root matter of the organs of hearing and touch; it is the origin of joy and enthusiasm and the stimulator of Agni. It is the cause of the Doshas getting dried up and the Malas (impurities) being thrown out of the body, it is the cause of division in all vessels of the body, both microscopic and macroscopic; it is the cause which makes embryos in the womb to take particular forms, and it stands as evidence of the existence of life; all these are the actions of Vayu, when unexcited. When we are taken through this catalogue of functions for which Vayu, Kapha and Pittha are responsible, a critic will perhaps ask—and the question is perfectly legitimate—‘What is the principle that underlies this classification into Vata, Pittha and Kapha? To be scientific, a classification must be orderly and not chaotic; I can see no intelligible principle or order, in this chaotic

mixing up of Digestion, Intellection, Greedlessness, Respiration, Enthusiasm, and all the rest of it' Now, this, as I said, is perfectly legitimate criticism. How is this answered in Ayurveda? A vital concept that has to be understood in furnishing an answer to this question is the theory of *Trigunas* "difficult to grasp and still more difficult to explain", but an attempt at exposition of the recondite concept has to be made because it is the correlation of *Vata*, *Pittha*, *Kapha* with the three *gunas* *Rajas*, *Satwa* and *Tamas* which, when properly understood serves to bring order to the apparent chaos of functions—some physical and some mental—for which *Vata*, *Pittha* and *Kapha* are held to be responsible.

The Gunas

According to all schools of Hindu thought, all "matter"—from the subtlest to the grossest—is characterized by the exhibition of the three '*Gunas*' which are generally translated as 'qualities'—a rather unsatisfactory rendering, because the term 'qualities' suggests the idea of pure abstraction, not the reality or substance, that '*Guna*' is in Hindu thought, the notion of 'quality' is applicable only from the standpoint of *Purusha* (or Spirit) because they are not *Purusha*'s essence or substance (if we may use such a term with reference to *Purusha*) but merely accessories from the standpoint of *Prakriti* or 'matter' they are its very substance, or rather the triune substance or three substances in one into which primal matter differentiated itself when the universe first came into manifestation. In this sense they are *Dravyas* or 'substances' and not attributes. As stated by Wilson in his commentaries on *Samkhya Karika*, In speaking of qualities, however the term '*Guna*' is not to be regarded as an unsubstantial accidental attribute, but as a substance discernible by Soul through the medium of faculties.' Though described as three *Gunas*, one *Guna* alone of these is never found isolated from the others—they are ever a mutually interdependent Unity in trinity. Professor Seal speaks of them thus in his *Positive Sciences of the Hindus* (1915 Edition) pages 3 to 5—'These *Gunas* are conceived to be Reals substantive entities—not however as self subsistent or independent entities but as inter dependent moments in every real or substantive existence. The *Gunas* are always uniting, separating, uniting again. Every thing in the world results from their peculiar arrangement and combination. Varying quantities of Essence (*Satwa*), Energy (*Rajas*) and Mass (*Tamas*), in varied groupings act on one another, and through their mutual interaction and interdependence evolve from the indefinite or qualitatively indeterminate to

the definite or qualitatively determinate. But though co-operating to produce the world of effects, these diverse moments with diverse tendencies never coalesce. In the phenomenal product whatever Energy there is, is due to the Element of Rajas, and Rajas alone; all Matter, resistance, stability is due to Tāmas, and all conscious manifestation to Sattva. The nature of the interaction is peculiar. 'In order' that there may be evolution with transformation of Energy, there must be a disturbance of equilibrium, a preponderance of either Energy or Mass-resistance or Essence over the other moments. The particular Guna which happens to be predominant in any phenomenon becomes manifest in that phenomenon, and the others become latent, though their presence is inferred by their effect." That erudite oriental scholar, the late Sir John Woodroffe (formerly Judge of the Calcutta High Court), in referring to this subject of the interaction of Gunas in his "Tantra of the Great Liberation" (Introduction—pages 31-33) shows clearly how differences in Guna-collocations make for difference of 'temperament' in different persons—a subject of first-rate importance in Ayurveda:—"The term 'Guna'," he says, "is generally translated 'quality', a word which is only accepted for default of a better. For it must not be overlooked that the three Gunas (Sattva, Rajas and Tamas), which are of Prakriti, constitute her very substance. This being so, all Nature which issues from her, the Mahakaraṇasvarūpa, is called Tri-gunatmaka and is composed of the same Gunas in different states of relation to one another. The functions of Sattva, Rajas, and Tamas are to reveal, to make active, and to suppress respectively. Rajas is the dynamic, as Sattva and Tamas are static principles. That is to say, Sattva and Tamas can neither reveal nor suppress without being first rendered active by Rajas."

The question has been raised, and answered too, by Hindu thinkers—as to why the Gunas of 'Matter' are three, and three only, neither more nor less; but, a consideration of this question takes us to speculations concerning the 'First' or 'Final Causes', which it is best to leave unattempted here. It is enough for us to note that this triplicity of Prakriti (or matter) corresponds to the triplicity of Purusha (or spirit), and that this triple nature alike of 'Matter' and 'Spirit', is a primal, fundamental and inescapable characteristic—the very essence so to speak—of every manifested existence; for, in this phenomenal universe, there is neither 'matter' (Prakriti) alone, nor 'spirit' (Purusha) alone, but it is ever Prakriti-Purusha (spirit-matter)—spirit ever limited by matter, and matter, ever

ensouled by spirit But, of course, 'spirit matter' is of various grades—minerals, vegetables, animals, human beings, divine beings, and so on From the subtlest and highest Deity or Ishvara to the lowest and grossest stone, all is "spirit matter" What differentiates us distinctly as Human beings from the other kingdoms of Nature is not so much the fact that our physical bodies have a distinct anatomy of our own (even our corpses have that) but the fact that Jivas (or Egos or Consciousnesses) have reached, in their evolutionary ladder, to a particular rung (viz., the human rung) while the Jivas (Egos or Consciousnesses) animating the animal and other kingdoms of Nature are still at its lower rungs—younger brothers of ours standing at those levels where we ourselves stood yesterday or the days before, counting by Nature's time Looking at it in this way, there is nothing in this world which is not Jiva or a Consciousness or a living being, everything is living matter characterized by the three Gunas—Rajas, Satwa and Tamas, we have Rajasic, Satwic, or Tamasic animals, vegetables, foods drinks, drugs, etc just as we have Rajasic, Satwic, or Tamasic human beings It is all of One Life—all is 'spirit matter' (*Purusha—Prakriti*) In the light of this teaching we can understand why the Ayurvedists hold that the Life of the human being, like Life in any other kingdom of Nature, must necessarily exhibit a primal and fundamental triplicity, viz., Rajas Satwa and Tamas a triplicity which in the living human being is shown in Life, Mind and Matter or Vata, Pitta and Kapha respectively In the light of this teaching, we may be able to follow the statement already made that the Dhatu triad, Vata, Pitta and Kapha represent in the living individual these universal, inseparable *Trigunas* (The Guna triad) *Rajas, Satwa* and *Tamas* hypostatized, according to preponderance of one or other Guna into *Life Mind* and *Matter* or the *Vitality principle, the Psychic principle and Physical matter principle in man* Orthodox Western Physiology deals only with the last and not as yet with the Vitality or Psychic principles, from this standpoint, its language is of one dimension only while the language of Ayurveda is of three dimensions as it were Hence, while we may attempt, as stated before some sort of equating at the level of Physical Matter known to both Ayurveda and Western Physiology, there is nothing as yet in the latter with which things at the levels of the vitality and psychic principles of Ayurveda could be equated We frequently find that Vata is equated to Nervous system or Nerve force Pitta to Digestive and other enzymes and Hormones Heat regulating Mechanism and so on At best, such equating may work at the

Physical level in a number of cases; but it breaks down at other levels and in certain cases, even at the Physical level. For example, intellection is a function of Pittha representing preponderance of Satwa Guna. Intellection in Western Physiology would come under Nervous system (cerebro-spinal) which is equated with Vata. Here is a case where the equating of Vata and Pittha as given above is seen to be untenable. The untenability of such equating also arises from the fact that the principles of classification of the things equated are of two radically different orders. When Western Physiology speaks of the Nervous tissue-Muscular tissue, Epithelial tissue etc., the principle of such classification is mainly anatomical based on the structure of the component parts. The principle of classification into Vata, Pittha and Kapha triads are mainly Biological based on functions correlated to the three gunas. The futility of attempts to find one to one equivalents between terms of these two classifications may be illustrated by an analogy with reference to an attempt at equating each territorial division of a city like Madras with a particular division of, say, its communal or professional distribution. Each territorial division comprehends many communal elements—Hindus, Muslims, Parsees, Christians, Harijans etc., and there may be variations in this respect, from division to division, one division containing all the communal elements of Madras while others may show varying numbers less than the total number of communities found in Madras. Similarly, each division may comprehend Teachers, Lawyers, Doctors, Artisans etc., representing the various professional classes residing in Madras; and there may be variations from division to division varying with the numbers and classes of the professional elements resident in each division. Under such circumstances, the question of equating the terms of different classifications in terms of one to one agreement would be a futile proposition. Not dissimilar is the attempt to equate the terms of the functional classification of Vata, Pittha, and Kapha in terms of the structural classification like the nervous system, glandular system, skeletal system and the like. It would not be correct to equate the functions of Nervous system as a whole to Vata alone or to equate functions of the Vata to Nervous system alone though this is done by certain scholars engaged in comparative study. Vata, Pittha and Kapha are each responsible for certain functions of both the Psychic and nervous systems; it is not Vata alone that is responsible for functions of the nervous systems as a whole. So too, Vata, Pittha and Kapha are each responsible for certain functions of the digestive system; it is not Pittha alone that is

responsible for functions of the digestive system as a whole. So long as the principles of classifications and even the very definition of a human being are so different as in the case of Ayurveda and Allopathy it is futile to seek equations of exact equivalence or one to one agreement. Further, the terminology of Vata, Pitha and Kapha is used in relation to the living human body only while, in speaking of the same body after death—after the human Jiva has withdrawn from it—it is said that the body has attained Panchatnam (a synonym of death) to indicate that the terminology to be used thereafter is the general Panchabhutic one applicable to all physical matter generally and not the terminology of Vata, Pitha and Kapha applicable to the living human being. Orthodox Western Physiology deals with the human body as only a Material entity while to the Ayurvedist the living person is really a Jiva or Spiritual entity animating and functioning for a time through Material bodies or Koshas such as the Mental, Emotional and the Physical. Under the Ayurvedic View, Jiva functions in and through all Koshas; and Vata, Pitha and Kapha are responsible not only for certain physical functions but also for certain Mental and Emotional functions classifiable under the Heads of Rajas, Satwa and Tamas. It is in this classification that we should seek to find the answer to the query of the critic noted at the beginning of this topic which was to the following effect —“In the list of functions of Vata, Pitha and Kapha, there is a chaotic mixing up of physical and mental functions. What is the principle that brings order into this chaotic mix up?” The answer is that the physical and mental functions of Vata come quite logically and understandably, under “Rajas,” those of Pitha under “Satwa” and those of ‘Kapha’ under ‘Tamas’. With this light we may be able to see order where we saw chaos before and also to see order at all levels of our lives—physical, emotional and mental and not merely at the physical.

Nature of Tridhatu

From this it will be seen that Vata, Pitha and Kapha correspond to the Panchabhutis, as and when, operated by a human Jiva, the Pachabhutic analysis of the body is essentially a physical conception (just as the Physicist may say that matter is built up of solids, liquids, gases, etc) while the Tridhatu analysis is essentially a Biological or rather a Bio physical one, corresponding to the primal and fundamental triplexity, viz, Rajas, Satwa and Tamas, exhibited by the human Jiva. As regards the correspondences between these two classifications

(viz., the Physical and the Biological), Akash and Vayu are held to enter into the constitution of Vata (which is Rajasic) while Thejas is held to enter into the constitution of Pittha (which is Satwic) and Prithvi and Ap, of Kapha (which is Tamasic). I must also mention here that, according to some authorities, the reason for not taking separate note in the dhatu category of Akash at one end of the scale of Panchamahabhutas and of Prithivi at the other, is this; Akash is unmodified and all pervadnig, while Prithvi is the last of the five Mababhutic states of matter, and there is no further modification beyond it; from the standpoint of Dhatu interaction and equilibrium, the due maintenance of which is the concern of Ayurveda, it is not necessary to take separate note of things which are not modified; hence it is that Akaash is grouped with Vayu while Prithvi goes with Ap. Be this as it may, we may envisage the thriddhatu—Vata, Pitha and Kapha—as the three Bio-physical elements, or corpuscles charged with human life, and corresponding respectively to Rajas, Satwa and Tamas. They stand, in the living body, for three groups of substances, the individuals of which, however much they may differ from one another, possess nevertheless certain characteristics common to every member of the group, thus, Vata corpuscles are all predominantly Rajasic, Pitha corpuscles, all predominantly Satwic and Kapha corpuscles, all predominantly Tamasic. We may therefore describe Vata, Pitha and Kapha thus :

Vata is that primal constituent of the living body, whose structure is Akash-Vayu, and whose function is Rajasic, it being concerned with the production of those physical and mental processes which are predominantly Rajasic (activating or dynamic) in nature: hence, as has been noted in the catalogue of functions of Thridhatu discussed already, the presence of Vata is to be inferred in such mental phenomena as exhibition of enthusiasm, concentration, etc, as also in such physical phenomena as respiration, circulation voluntary action of every kind, excretion and so on. It will be seen that many of these physical phenomena are included among those which Western Physiologists would assign primarily to the activities of the nervous system (both cerebro-spinal and Autonomic.)

Pittha is that primal constituent of the living body, whose structure is Thejas and whose function is Satwic, it being concerned with the production of those physical and mental processes which are predominantly Satwic (balancing or transformative) in nature, hence the presence of Pittha is to be inferred (vide. catalogue of functions of the Thri dhatu given before) in

such mental phenomena like intellection and clear conception, as also in such physical phenomena as Digestion, Assimilation, Heat-production and so on, it will be seen that many of these physical phenomena are among those which Western Physiologists would include under the activities of the Thermogenetic and nutritional systems (including Thermogenesis and the activities of glandular or secretory structures—especially of the Endocrines or Ductless glands, whose Internal Secretions or Hormones are now known to be of such vital importance in Digestion, Assimilation, Tissue-building and Metabolism generally

Kapha is that primal constituent of the living body, whose structure is *Ap Prithvi* and whose function is *Tamasic*, it being concerned with the production of those physical and mental processes which are predominantly *Tamasic* (conserving or stabilising) in nature, hence the presence of *Kapha* is to be inferred in such mental phenomena as exhibition of courage, forbearance, etc. as also in such physical phenomena as the promotion of bodily strength and build integration of the structural elements of the body into stable structures, the maintenance of smooth working of joints, and so on. It will be seen that many of these physical phenomena are among those which western physiologists would include under the activities of the skeletal and anabolic systems, but, it is difficult to interpret in terms of Western Physiology, that all important function of *Kapha*, which is concerned in protecting the tissues from being consumed as it were, by a internal 'fires' of *Pittha* if they were not kept in check by the 'waters' of *Kapha*. It seems probable that the problem of explaining how the internal 'fires' in the living body were ever kept burning bright, though surrounded always by the 'waters' of the body, exercised the minds of the Hindu Scientists, just as, since the times of Lavoisier, the minds of Western Scientists are being exercised over the analogous problem of explaining how at the comparatively low temperature of about 37°C physiological oxidations are being continually carried on in the living body, at a comparatively rapid rate, while, outside the living body, the same materials are consumed or oxidised with extreme slowness

There are many things now happening in the world of Modern Science and Modern Medicine which may make us, unless we are careful to jump to hasty conclusions on the basis of a few striking resemblances, but, such temptations must be resisted while the critical study and investigation of recorded facts and observations must go on with all possible diligence. In illustra-

tion of what I mean to convey, I may consider here a pointer in relation to the very topic of the Thridhatu theory that I have discussed above; in the light of what is referred to in the latest books on Modern Physiology as "The Humoral transmission of Nerve impulse".

Sarangadhara, a renowned Ayurvedic authority with a flair for expressing Scientific facts through impressive poetic imagery speaks of Pitha and Kapha humors as Pangu (Lame individuals) dependent for their movement from place to place on the lead given by Vata dhatu and journeying to whatever place Vata leads them. This is, of course in perfect consonance with the ancient teaching that Rajas, is responsible everywhere for movement of every kind and that as Vata is the Dhatu in the living human being which is preponderatingly Rajasic in nature, it is the Vata humour that brings about the movement of every kind and degree including the transmission and circulation of bodily humours, body fluids and bodily elements of every kind,

Professors of Modern Physiology have now begun to speak of "Humoral" transmission of nerve impulses without the least suggestion of the term "Humoral" being unacceptable to them as when the Ancient Thridhatu theory was spoken of as the exploded or discarded "humoral" theory. On the contrary, they say that the evidence is now very complete that nerves do not act on the tissues directly but through the Agency of Chemical or "humoral substances" like Acetyl-choline, Adrenaline and the like. Acetyl-choline is released at the nerve-endings of ordinary Somatic nerves. It is also liberated in the region of Motor nerve-endings or plates; and it now seems likely that many of the phenomena noted in relation to muscles are explicable as due to release and accumulation of Acetyl-choline at nerve endings. Some sympathetic nerves have also been shown to show a chemical or humoral substance, sympathin, which has an action almost identical with that of Adrenaline and the opposite action of Acetyl-choline. Humoral transmission may also occur within the nervous system itself; for if fluid is passed through the superior cervical ganglion and the sympathetic stimulated, Acetyl-choline is released into the perfusion fluid. Every organ of the body over which we have no voluntary control appears to be supplied with two sets of fibres—from the sympathetic and the parasympathetic—which have opposite functions. The sympathetic or Accelerator group is termed *Katabolic* (according to Gaskell's nomenclature) as they are concerned with general increase of work and utilisation of energy in the various parts of the body while the Para-sympathe-

tic group is termed *Anabolic* as it is more intimately concerned with the processes which take place during bodily rest. Here then we have the idea of two systems—the sympathetic and par-sympathetic—with opposite functions, one being *Katabolic* and the other *Anabolic*. In either case, the resulting action is due to release of certain humoral substances of two groups with opposite properties namely the adrenaline group released by stimulation of the sympathetic or *Katabolic* nerves and the Acetyl choline group released by the Par sympathetic or *Anabolic* nerves.

From this it is tempting to jump to the hasty conclusion that the two classes of humoral substances of Allopathy with opposite properties are equatable to the two humours of Ayurveda with opposite properties viz, *Pitha* (the *Katabolic* or breaking down humour) and *Kapha* (the *Anabolic* or building-up humour) which are both *Pangu* or lame humours in the language of Sarangadhara, their transmissions and releases at any point or points being dependent on the humoral transmission of the stimulated nerve impulse equatable with *Vata* activity. Thus, we may be tempted to conclude, is the ancient Ayurvedic teaching justified by the latest findings of modern Allopathy, but, this temptation must be resisted, for, the comparisons and resemblances are far too superficial and the recorded observations and experiments confined so far too limited a field to justify any such general conclusions being drawn.

Prakriti (Temperament)

Persons are broadly marked off from one another into three classes or groups, viz, *Vata*, *Pitthala*, *Shleshmala*, according as the type of their inherited *Thridhatu* constitution shows respectively a predominance of *Vata*, *Pittha* or *Shleshma*, those *Dhatus* which are not predominant may be either co operant or latent, so that we have a number of sub groups, each with its own type of inherited *Thri dhatu* balance, then again, depending upon quantitative variations, we have many ways in which *Thri dhatu* equilibrium is possible, it is due to such differences in the constitution of the inherited *dhatu* balance that every person somehow differs from every other person, although all are classifiable under one or other of the three primal and fundamental groups spoken of above viz, persons of *Vata*, *Pittha* and *Kapha* *prakritis*, or 'temperaments' as the English rendering has it. In Ayurveda it is of vital importance to know the *Prakriti* or 'Temperament' of every person, because all his life activities, both in health and disease, have to be judged and adjusted with

reference to his own type of inherited dhatu-constitution ; and we cannot intelligently adjust his Nurture (including his nutrition and environment) unless we know his Nature or Prakriti. For the proper diagnosis of a person's Prakriti, a careful examination (both physical and mental) is necessary ; the characteristic features of each group are set down at length in works on Ayurveda ; but, for our present purpose, it is not necessary to go into those details ; it is enough to know that it is a cardinal principle of Ayurveda that all human beings are broadly classifiable under the three primal groups of Vatakas, Pitthalas and Shleshmalas, according as the constitution of their inherited dhatu-triads show a predominance of Vata, Pittha or Kapha substance. That leaders of Medical thought in the West have now begun to think along similar lines may be gathered from the following extract from the writings of a distinguished British Physician, Dr. Leonard Williams, which reads strikingly 'Ayurvedic' even to the very notion of a person's inherited features and constitutional peculiarities being dependent on the peculiar mode of mixing or combining of his inherited 'humours' or 'essences' as he calls them :—"while the time is not yet ripe for dogmatic statement, there is a large mass of evidence which goes to show that the ductless glands, the endocrines, with their essences, their hormones as they are called, constitute the mainspring of this surprising mechanism. Nor does the importance of the endocrines stop here ; for according to the exact proportion in which their essences are admixed in your blood, you are tall or short, dark or fair, phlegmatic or choleric, saint or sinner, sexual, homo-sexual or sexless, male or female." (British Journal of Psychology, Medical Section, Volume II, page 262.) Then again, we have Prof. Goddard stating thus in his "Psychology of the Normal and the Sub-Normal" (page 228) :—"Cannon's and Crile's discoveries and other work with the ductless glands made it entirely possible that, while we may not be dealing with blood, yellow bile, and whatever fluids the ancients thought of under the name of black bile, and phlegm, we may nevertheless be dealing with such fluids as are secreted by adrenal glands, thyroid glands the thymus and the other glands of internal secretion. It would seem quite probable then that we are to think of different individuals as having inherited different constitutions in these particulars." So too we may cite evidence in support of the 'humoral' theory from the large mass of facts that have now gathered round the subject of the Transfusion treatment of hæmorrhage, shock etc., and the classification of persons according to their types of blood-grouping, depending on their posses-

sion of certain humoral substances or factors (including the recently discovered Rh factor) all stated to be inherited according to the Laws of Genetics

Metabolism and the Seven Dhatus

Metabolic changes, like all life activities in general, are brought about, maintained and regulated by Vata, Pitta and Kapha, we may consider first the processes by which the food ingested is transformed into various tissue elements or 'Dhatus', as they are called. It has to be noticed here that as stated before, Ayurvedists use the same name, viz, Dhātu (literally 'support') to designate both the primary Dhatus Vata, Pitta and Kapha, as also the secondary ones, viz, Rasa, Rakta, and other elementary tissues, which we are going to consider now. The exact sense in which the word is used in any particular case be easily made out by the context. It may also be mentioned here that these secondary Dhatus are also called 'Dushyas' (or Vitiables), so-called because they can be vitiated by the primary Dhatus (Vata, Pitta and Kapha), which when looked at from this standpoint of causing vitiation are spoken of as 'Doshas' (literally faults). We may now go on to consider how food is transformed into various Dhatus, the first step is the conversion of food into Rasa dhātu, this takes place in Amashaya, Grahani and Pakwashaya (Region of Stomach including Pylorus and Duodenum), the agents concerned in the production of Rasa from food are Vata, Pitta and Kapha. Vata in the form of Prana Vayu sends food down the gullet into the stomach, whence after certain changes it is sent down the Grahani in Amashaya, in these digestive chambers food is acted upon by Pitta (Pachaka Pitta) in the menstruum of Kapha present there and gets converted into Rasa (Chyle), which contains, in essence all the ingredients necessary for the formation of the various tissue-elements of the body. The essence of food becomes the Rasa Dhātu, while its dross is rejected as Mala. In a similar way we get by the repeated action of Vata, Pitta and Kapha, the transformation of Rasa (Chyle) into Rakta (Blood) Rakta into Mamsa (Muscle) Mamsa into Medhas (Fat), Medhas into Asthi (Bone), Asthi into Majja (Marrow) and Majja into Shukra (Reproductive elements). Rasa is driven by Vayu to the heart and then to the liver and spleen, where the appropriate pre rakta constituents of Rasa are acted upon by Agni or Pitta (Ranjaka Colour giving Pitta) in the menstruum of Kapha and becomes transformed into Rakta, this again is acted upon by Vayu and Agni (Mamsagni) in the menstruum of Kapha, when transfor

mation into Mamsa takes place, this process is repeated till, by successive transformations, we get Asthi, Mṛjja and Shukra. It is also held that every one of the Dhatus from Rasa to Sukra elaborate, during the course of its metabolic transformation, a special subtle essence, which goes to form the Ojas Dhatu which is, as it were, the quintessence of all the seven Dhatu essences. The presence of Ojas is of the very essence of our life activities and if the successive metabolic transformations that end in the production of Sukra Dhatu (the Reproductive Elements) are not properly formed, then, the Ojas formation suffers, and life activities themselves may cease altogether from lack of Ojas, if the metabolic transformations cease to be performed for an unduly long time. Each of the Sapta Dhatus is thus seen not only to take from the common stock whatever is necessary for its own normal life but also to give to that same common stock its own best and highest essence (Prasadam) as its special and necessary contribution for the normal life of the organism as a whole. The *sine qua non* for the healthy life of each individual Dhatu is that it should contribute its best to the healthy life and common good of all the Dhatus constituting the whole of the organism. Such is the Law governing the life and health of each individual Dhatu—that it should seek and find its own highest good by working for the highest and common good of all the Dhatus constituting the organism as a whole. This is only the application in the field of human organism of a most beneficent and universally applicable Law (Dharma) that the highest good of the part is secured automatically when that part and all other parts co operate to work for the highest good to the whole—a beautiful thought reminding us of a memorable teaching of our ancient scriptures that the due performance of Sacrifice (Yagnya) by each individual is the Law (Dharma) which governs the highest good of all (Lokasangraha). Where each Dhatu or part so works as to contribute its best as its special sacrificial offering, joyously and dutifully laid at the altar for the worship of the common good of the whole, its work is verily its worship and its sacrificial offering is returned to it blessed and sanctified for its highest good. Such is the Law or Dharma. This is good Physiology as well as good Philosophy and sound Sociology.

As far as I know, there is as yet nothing in Western Medicine corresponding to the above noted conception of the metabolism of the Sapta Dhatus leading to their orderly evolution from Rasa to Rakta, Rakta to Mamsa and so on to Sukra and Ojas. It may, however, be noted that the conception of a special Dhatwagni (Mamsagni Medogni etc.) existing in each Dhatu and becoming activated by Vata during its metabolic processes in the substrate or menstuum of Kapha bears some resemblance to the conception of Endo enzymes as envisaged in the following extract from pages 1022 to 1026 of Howell's *Text Book of Physiology*—(1946 Edition), "In Life, Endo enzymes play their part

within the bounds of the cells in which they are contained and probably constitute the chief means through which are effected the metabolic processes that characterise living matter In many cases, it can be shown that the Enzyme exists within the cell in an inactive form, and requires the Co operation of some other substance before it is capable of effecting its normal reaction. In such cases, the second substance (Activator) is said to activate the enzyme . . . In some cases, it may be supposed that after the enzyme combines with substrate, further effect upon the substrate depends on the activity of a Co enzyme "

Prana and Marma

The Ancient wisdom of India has a vast literature relating to the subject of "Prana", the Life or Vitality principle which, with Mind or Psychic principle and Matter or Physical principle correspond to Rajas, Satwa and Tamas respectively, characteristic of Prakriti in all its myriad forms of manifested existence. Life is one aspect of the universe of which Form is the other. The term "Prana" has many meanings and shades of meanings which are to be understood from the context in which the term is used. A recent writer has catalogued one hundred and one senses in which the term is used in the Samhita literature alone of the Vedas excluding the Brahmanas, Aranyakas and the Upanishads. This may serve to indicate the vastness and richness of the literature available on the subject. In a general sense, Prana is, according to Vedanta Darshana, a fundamental or basic principle co-existent with Spirit and Matter and brings them into intimate and inseparable relationship with each other at all levels of their manifold existence. The Yoga Darshana uses the term in a special sense when it speaks of Prana and Pradhana as constituting man. In this sense, Prana is spirit or the Self with such envelopes of matter as it has identified with itself at any time while Pradhana is non self or Matter which can be put aside and viewed objectively. As the Yogi progresses from stage to stage, Prana and Pradhana show changes in their content so that the Self identifies itself with less and less of enveloping matter and is able to put aside more and more of it into Pradhana for being viewed objectively as not self. It is, however, in Prana as it is manifest in Pranamayakosha that the interest of the Ayurvedist specially lies. According to Vedanta Darshana, the Jivatman (the Self or Soul) in man is clothed in five koshas or sheaths of matter of which the gross physical body—Annamayakosha (literally Food filled body) is the densest with Pranamayakosha (Prana filled body) coming next to it with matter in a comparatively sukshma (subtle or ethereal) State. Prana from Pranamayakosha pervades every part of the living physical body or Annamayakosha as Electricity pervades every part of a live wire. If Electricity ceases to pervade the wire, it ceases to be a live wire. So, if Prana is withdrawn from or ceases to pervade the living physical

body, it ceases to be alive. Orthodox Physiology in the West is yet in the stage of presenting automatic resistance to the acceptance, even on the basis of a working hypothesis, any theory of Prana or vitality Principle lest such acceptance should mean the acceptance of the theory of Vitalism or Vital action which is still taboo in orthodox physiology. It still cherishes the hope that vital action will someday be explained in terms of physics and chemistry tho it cannot help admitting it cannot deny the existence of a property of living matter which has not yet been brought into line with the known chemical and physical forces and which sometimes operates, actually neutralising such known forces (Vide—p 299 of *Handbook of Physiology and Biochemistry*, by Prof McDowall—1946 Edition). Under such circumstances, there seems to be no common basis to proceed any further with the attempt to present the teachings of the Ancient wisdom relating to Prana in the language of Modern Science.

There is, however, one topic in this connection which may be of special interest to our Surgeons, and it is the one on "Marmas" or vital areas which are like special reservoirs of Prana as in the case of the three Principal Marmas—Hridayam, Shiras and Vasthi or like junctions of Pranic currents as in the case of the other 107 Marmas described in Sushruta and other standard works of Ayurveda. The importance of these Marmas to the surgeon is that cuts and injuries to those vital spots are attended with serious and sometimes even fatal consequences. The surgeon is therefore warned to remember that there are some Marmas which the Surgeon's knife should never touch, some which may be touched at one inch distance and some, at two inch distance and so on. This is a teaching which admits of crucial testing by surgeons interested in the subject.

Ayurvedic Anatomy

In Ayurveda, Anatomy and Physiology are generally treated together under the heading of 'Shareera' the relation between them is undoubtedly very intimate, they being the two limbs of Biology. Though, for the convenience of description, the study of structure (or Anatomy) is in Western Medicine dealt with separately from the study of Function (or Physiology), still it is only when they are studied together as the two limbs of Biology that the real value of each to the other and to Medicine as a whole is best appreciated.

The past and the present of Ayurvedic Anatomy is so very well reviewed by the late Dr Kaviraj Gananath Sen in the introduction to his Pratyaksha Shareeram (a work on human anatomy written in Sanskrit) that I cannot do better than cite the following extracts from his masterly review—"That the subject of Anatomy formed part of a preliminary course in Medicine and Surgery in ancient India admits of little doubt. Nay, a short course of Anatomy was once held a

necessary adjunct in the intellectual outfit of even a general student, so that writers of the Puranas and Dharma Shastras found it expedient to include short discourses on the subject in many of their works. Anatomical discourses are also found in the hoary Vedas and in the aged Nirukta of Yaska, as also in old Buddhistic literature. In the ancient medical works of Sushruta and Bagbhata, both major and minor surgical operations, such as Laparotomy (opening the abdomen), Amputation of limbs, Embryotomy, operations of the Intestines, Lithotomy and various plastic operations have been described with such precision that the anatomical knowledge which this presupposes could not have been of a mean order. Clear references to the circulation of blood occur in the works of Charaka and Bagbhata. Dissection of the human body has been enthusiastically recommended by Sushruta and Bagbhata and there can be no doubt that the practice was in vogue in the palmy days of India's intellectual sunshine. As Dr Hoernle has very aptly remarked—'Probably it will come as a surprise to many, as it did to myself, to discover the amount of anatomical knowledge which is disclosed in the works of the earliest medical writers of India. Its extent and accuracy are surprising, when we allow for their early age—probably the sixth century before Christ and their peculiar methods of definition'. Ever since the invasions of the Greeks (327 B C), much of the past glory was lost. The real wonder is—how so much has yet survived. . . In Anatomy, the loss has been very heavy. All original works having been lost, Hindu Anatomy now survives only in a few meagre and desultory dissertations in the so called 'Anatomical sections' (Sharirasthana) of the larger Ayurvedic works now extant. The Tantric Literature, which elaborately describes the Brain, the Spinal Cord, the Sympathetic chains of Ganglia and the different Plexuses of nerves (Nadi) is now shrouded in so much mystery that few people suspect that there is such a world of anatomical facts concealed in it." The best way of bringing Ayurvedic Anatomy up to date is to do what Dr. Kaviraj Gananath Sen himself has done, viz., to re edit and re write Ayurvedic Shareeram in the light of modern Western Anatomy, which has now been rendered precise and comprehensive, by the patient labours of a succession of devoted anatomists. The Descriptive Anatomy of the West may well be treated as a supplement to or commentary on the brief or summarised Texts of the existing Ayurvedic Literature while there are many teachings in Ayurvedic Shareeram (Anatomy and Physiology) which may be considered to continue from or begin where the Western teaching ends. I venture to urge that Western scientists may make an understanding study of the 'Chakras' (centres of consciousness), the Pranas, the 'Marmas' (Vital points), and the many other Ayurvedic details given in our ancient Literature. It seems to me that here, as elsewhere, there is vast scope for both Ayurveda and Western Medicine,

to exchange thoughts so that each may learn from the other what the other can teach

Etiology and Pathology

Etiology

In the consideration of the Panchabhuta theory of Matter, I compared the subjective analysis of Ayurveda with the objective analysis of Western Science and pointed out that the subjective analysis has the advantage, specially from a philosophical standpoint, of having a complete theory adequate for all time (the attribute of *Sanatana*) I also pointed out that while the Western analysis which divided Matter into 82 chemical elements till a few years ago had to go on changing this number as new elements came to light from time to time so that the number stands now at 94 Hindu thought analysed Matter into five divisions which would prove adequate for all time needing no change from time to time and in one or other division of which ready made accommodation existed not only for all things known in the past and the present but also for those that may become known hereafter It was also pointed out that the enunciation of theories having this quality of *Sanatana*—adequacy for all time—is a general feature of Hindu Analytical thought which meets us throughout our studies The subject of Etiology provides us with a striking illustration of this characteristic feature of Hindu Analytical thought That causation of diseases is by agencies outside of oneself is common ground between Etiology of both Ayurveda and Allopathy but the analysis of such agencies by Ayurveda and Allopathy shows the characteristic features differentiating the two view points An analogy may perhaps serve a useful purpose in this context Let us suppose we wish to classify the various invasions of India, we may do it in two ways in one we may classify the invasions as those by either land or sea or air in the other we may classify them as those by the Greeks, the Scythians, the Muhammadans the Europeans and so on The first classification is all comprehensive and applicable for all time because, all invasions must take place in one or other of these three modes—singly or combined but, the second classification is applicable only to the present and the past and that too, only so far as it is known and if there are new invasions in the future (which God forbid) by people other than those given above, the list will have to be added to, whereas in the first case, all future invasions will naturally go in under one or other of the three categories that have been laid down once for all and for all time as it were This is the complete method followed by Ayurveda in its Etiological analysis while the Allopathic analysis follows the second method of the analogy given above which does not give any assurance of completeness or adequacy as does the first because its contents will have to be

supplemented by additions if, in the future there are invasions other than by agencies noted in the analogy given above

Ayurvedic Etiology

Etiology or the causation of disease, according to Ayurveda, may be summarized thus¹—Health is when a person's 'Dhatu equipoise' is normal, and ill health, when it is abnormal. Vata, Pitta and Kapha, which are spoken of as Dhatus when in their normal equipoise are referred to as Doshas (Faults) when their equipoise becomes abnormal, because in this condition of abnormality, they vitiate or cause faults in the secondary Dhatus like Rasa, Rakta, etc. The essence and *sine qua non* of ill health or disease is the abnormality of Dhatu equipoise—Dosha Vaishamyā—which is caused by certain extrinsic causes like Mithya Ahara and Vihara (faulty diets and practices) and certain intrinsic causes coming under the category of Gunā Vaishamyā (disturbance of the normal equipoise of the Gunas—Rajas, Satva and Tamas). The analysis of all possible causes of Disease are summarised in certain time honoured aphorisms, admirably concise and precise and yet highly expressive and all comprehensive. Such aphorisms are liable to suffer badly in translations. Further, we have to approach the subject in the same way that the Ancients approached it, if we are to understand the full significance of the phraseology of these aphorisms which may sound quaint in the ears of those used only to modern phraseology. The key words used in these aphorisms for classifying all possible causes of every kind and degree—all causes which are already known as well as those which may become known hereafter—are the following

(i) *Asatmyendriyārtha Samyoga* (असात्म्येन्द्रियार्थसंयोगः)—*Incompatible correlation of Indriyas (senses) with their Artha (objects)*—Ayurvedists explain this as follows. Bhautika Dravyas (Panchabhutic substances or Physical objects) cannot make for health or ill health without coming into contact with our bodies. Such contacts can occur in only five ways—that is through the five senses (Indriyas) which are our normal channels for contacting all objects already known as well as those which become known hereafter. These five ways of contact of Indriyas with external objects can show abnormalities of three kinds *viz*, Atiyoga (excessive Degree of correlation), Heenayoga (Defective degree of correlation) and Mithya Yoga (Correlation of faulty quality). The underlying idea of this classification may be stated thus. All external objects that can invade our bodies and cause diseases—whether they be physical agents, chemical substances, Microbes, Parasites or any other—can enter our bodies in only five ways—through the channels of our five senses, and each of those five ways or modes of entry may exhibit three

¹ For much that is contained in the following I am indebted to the authoritative evidence (written in Sanskrit) of the (late) Venerable Swami Lakshmi Ramaswami Acharya of the Government Ayurvedic College, Jaipur.

variations from the standpoint of their capacity to cause diseases *viz* Variations from normal by way of excess (Atiyoga), Defect (Heenayoga) or qualitative change (Mithyayoga) Under this classification, diseases caused, say, by blinding light falling on the retina and injuring the eye, deafening sounds falling on the ears and injuring the ears, foods and drinks taken in injurious excess etc., would be described as diseases caused by Atiyoga (Excessive contact or correlation of Light, Sound, Foods and Drinks, etc., with the senses of sight, sound, taste, smell and touch) Similarly, diseases caused by abnormal quantitative defects instead of by abnormal increases as in the examples given above would be described as diseases caused by Heenayoga (defective contact or correlation) of light sound, foods and drinks etc., with senses of sight, sound, taste etc Diseases caused by injurious rays, foods and drinks, etc., would be described as caused by Mithya Yoga (qualitatively abnormal correlations or contacts) of sight, foods and drinks etc., with sense of light, taste etc

(ii) *Prajnaparadha* (प्रज्ञापराध)—*Faults of understanding*, also known as Karma The phenomena coming under this category are classified under three heads, *viz*, Shareeram (relating to body), Manasam (relating to mind), and Vachikam (relating to speech), and these become causes of disease when faulty understanding causes excessive, defective or perverted correlations of such phenomena (Atiyoga, Heenayoga and Mithyayoga) resulting in abnormality of Dhatu balance

(iii) *Parinama* (परिणाम) also known as Kala This is quite a technical word which has reference to seasonal and other phenomena governed by the time factor (Kala) If, by excess, defect or perversion (Atiyoga, Heenayoga, or Mithyayoga) they become abnormal then, they may cause disease by way of causing Dosha Vaishamya (abnormality of normal 'dosha equilibrium') Thus, ill health may be caused by such agencies as abnormally severe or mild seasons, the prevalence of winter conditions during summer or of rain during the non rainy season and so on This category also includes Karmic causes which are stated to cause manifestation of disease at the time of Karma Vipaka—the time when the Karmic seeds become mature or ripened by Parinama

(iv) *Gura Vaishamya* (Abnormality in the equilibrium of the Gunas—a term which has been already explained) Of the three Gunas, Satwa, Rajas and Tamas, it is held that only Rajas (stimulator) and Tamas (inhibitor) can become Doshas (or Faults) while Satwa (Balance or Harmony) is always a Guna and never a Dosha This category has reference to *mental* Doshas (Manasa Dosha) Cupidity, cruelty, anger, rage, jealousy, indolence, self indulgences etc., are mental Doshas or Faults The time has gone by when some well meaning students of Western Medicine used to say that Ayurveda unscientifically mixes up

Ethics and Medicine in laying down, as it does, that unethical conduct (for example, getting into a fit of anger, rage or jealousy) was one of the causative factors of disease. Modern research is now confirming the ancient teaching, we now know that feelings like anger and rage can set up, and be set up by abnormal conditions of the physical body. "Emotion causes" says Crile "a more rapid exhaustion than is caused by exertion or by trauma except extensive mangling of tissue, or any toxic stimulus except the perforation of Viscera." "Cannon has shown," says Professor Goddard, "that a stimulation of the adrenal gland produces all the phenomena of anger and rage, and conversely, the production of anger and rage by any other method affects the secretion of the adrenal glands. There are a number of other such glands. . . There is no reason to doubt that some, if not all of these other glands may have similar relation to emotion." It would therefore appear that far from ridiculing our Ancients as persons who knew no better than to mix up health and ill-health with the practice and non practice of the social and moral virtues, Modern science itself may well be prepared to preach an "ethical sermon, somewhat in the following strain "If you habitually allow yourself to get into fits of anger or rage, the result will be, among other things, unhealthy stimulation of your adrenal glands, leading perhaps to neurasthenia. If you habitually get into temper as often as you can, you will surely have to pay the penalty for it in the shape of dyspepsia and such other troubles. If on the contrary you are ever affectionate and cheerful, radiating sunshine wherever you go, you may safely trust to your own glands—both the ductless and the ducted, to keep you ever young and in radiant health. In brief, judged even from the most materialistic standpoint of sheer physical well being it will pay you exceedingly well to practise altruism, sobriety, cheerfulness, affection and other social and moral virtues, while avoiding like poison, greed, hatred, jealousy, anger, rage and other vices which are Antisocial or contrary to moral virtues. Go about doing good, avoiding evil, and practising Sadachara (*right, social and moral conduct*) as Nithyakarma (daily routine) and I promise you the very best of health and therefore of happiness'.

Allopathic Etiology

As regards the Allopathic analysis of causes of disease, it looks at the invasion of the body by disease causing agencies from an objective standpoint and groups them under certain categories suggested by causes of disease known at the time of grouping. When hitherto unknown causes become known at any time, the grouping of categories will have to be changed if the newly known cause or causes could not go under any of the categories of the existing grouping. Thus, the grouping of causes of diseases as framed in days before the microbic causation of disease became known, became inadequate after it became known. Similar

inadequacy resulted when the causation of diseases by excess or deficiency of Vitamines and Endocrine secretions became known. Even the latest available grouping given in "A Text book of Pathology" by Prof William Boyd (page 17 of 1945 edition) cannot now be considered adequate or complete. The following is the grouping as given in the above reference: (1) congenital or hereditary tendencies or defects with which may be included the difficult subject of constitution; (2) insufficiency of food and oxygen, including those conditions known as deficiency diseases; (3) infections by the various pathogenic micro organisms; (4) animal parasites; (5) trauma; (6) physical irritants; and (7) chemical poisons. One reason why this grouping cannot now be considered adequate or complete is that it cannot take in those emotional and mental phenomena which, as shown above, have now been definitely established to be causative factors of certain diseases.

Comparison of Ayurvedic and Allopathic Etiology

For comparing the Etiological analysis of Ayurveda and Allopathy in regard to disease causing agencies invading the body, I gave at the beginning of this topic, the analogy of invasions of India being classified in two ways viz., either as invasions by land, sea or air or as invasions by Greeks, Scythians, Muslims etc. I also said that the Ayurvedic analyses is on the lines of the former classification. This analysis of all possible disease causes invading the body under the categories of Indriya, Artha, Samyoga, Prajnaparadha, Parinama and Guna Vaishamya is therefore complete, comprehensive and adequate for all time, just as the classification of invasions of India by Land, Sea and Air is complete, comprehensive and adequate for all time, as all invasions in the past, present or future must come under one or other of these categories singly or combined. The Allopathic analysis given above is like the second classification of invasion of India given in our analogy namely invasions by Greeks, Scythians, Muslims—a classification which would necessarily prove incomplete or inadequate if new invasions of India occur in future by people other than those noted in the analogy. So too the Allopathic analysis would necessarily become inadequate when new causes of disease not coming under existing grouping become known. The only difficulty that may stand in the way of the logical perfection and the philosophical completeness of the Ayurvedic Analysis being properly appreciated is the peculiar phraseology used by the ancient authors of our Ayurvedic classics. If an approach is made with an understanding study of such phraseology the reward would be great indeed.

Nija and Agantu Causes and Diseases

There are two modes or forms in which the causes of disease may exist in relation to disease. In one (called the Nija form) the extrinsic cause first sets up abnormality of Dhatu equilibrium which results in the painful condition called disease, while, in the other (called the Agantu

form) the painful condition is first produced, and is followed later by the manifestation of abnormal Dhatu equilibrium. Injury, poisoning, parasitic germs, etc., come under the latter heading. Though diseases are thus classified as Nija and Agantu, yet, after disease is manifested, they are similar in their clinical manifestations. For, unless Agantu causes set up abnormality of Dhatu equilibrium, the disease cannot have any real or continued existence. It is not every injury (even though painful for the time) that produces disease, some may be quite ephemeral and pass off without eventuating in disease, it is only when body conditions are such that the Agantu cause actually produces the manifestation of Dhatu-morbidity that it can be spoken of as being the cause of disease. Hence it follows that abnormality of Dhatu equilibrium is the essential feature of both Nija and Agantu diseases.

Ayurvedic Pathology

Ayurvedists trace the process of development of Dosha Vaishamya—the abnormality of Dhatu equilibrium—through the following six stages or *Kriya Kalas*, as they are sometimes called.

(1) *Sanchaya* or *Chaya* (accumulation) is the stage when the Dosha accumulates in a particular part as *stagnant Dosha*.

(2) *Prakopa* (Excitation) —When the stagnant Dosha has accumulated and permeated a structure, there is excitement from aversion to wards similars and attraction towards contraries. This is known as *Prakopa* (excitation), which is also explained as *Prarambha rupa* or *initial stage of disease*.

(3) *Prasara* (spreading) —This is the stage where the excited Dosha extends to another part.

(4) *Sthana Samshraya* (taking up another location) —This is the stage where the excited Dosha, having extended to another part, becomes located there, causing beginnings of specific diseases of those structures (e.g., diseases of blood, stomach, bladder and so on).

(5) *Vyakti* (manifestation) —This is the stage where the abnormality of Dosha equilibrium results in the fully developed form of disease.

(6) *Bheda* (variation) —This is the stage where diseases become chronic incurable, etc. The importance of recognizing this stage lies not only in its being a very valuable aid in prognosis, but also in the fact that when diseases go to this stage, they may act as predisposing causes of other diseases, or may so vitiate the germinal elements as to make for the esse of congenital or hereditary diseases in the offspring.

The Germ Theory of Disease—The Seed and the Soil

There seems to be a general idea that the germ theory of disease which plays so important a part in modern western medicine is not known to Ayurveda, I propose to examine the question at a little length as great importance seems to be attached to it in certain scientific circles. My argument will be that it is not true to say that the germ-theory of

causation of certain diseases was not known to Ayurveda, and that what is true is that it did not, and does not, occupy in Ayurveda the all-important position which it does in modern western medicine.

We have seen that, according to Ayurvedists, causation of disease is two-fold, viz., extrinsic (Bahya) and intrinsic (Abhyantara), and that parasitic germs are mentioned among the extrinsic causes, under the sub-head 'Agantu,' together with Traumas and poisons of all kinds. There are two ways in which Agantu diseases manifest themselves in the body, viz. (1) independently (Svatantrena) and (2) by infection or contagion (Sankaramanena). Leprosy, other Kushtas and infectious diseases generally are instances of diseases conveyed by contagion. Pathogenic organisms (Krimis) are broadly divided into two classes, viz., those which are visible to the naked eye and those which are not; thus, Susbruta, in the chapter entitled Krimi-Roga-Pratisheda, speaks of twenty kinds of Krimis, of which the first thirteen kinds are mentioned as being visible to the naked eye, while Keshada, Romada and others are said to be not so visible (केशादादयास्त्वद्दृश्यास्ते). Vagbhata is also clear as to the causation of Kushtas by invisible organisms, his significant reference to them as living Anooos (जन्तवो अणवः) is unmistakable, as also his statement that some of them are invisible because of their minuteness (सौक्ष्म्यात्केचिददर्शनाः) (Ashtangahrdaya,—Nidanasthana, Chapter VII). While there can be no doubt that the existence of microscopic organisms as also their definite causative relationship to certain diseases was distinctly recognized by Ayurvedists, yet, it is clear that they did not attribute to germs the all-important role assigned to them by orthodox western scientists of to-day, they merely looked upon the germ as one among the many Aganthu causative factors, capable of producing disease, if the soil or field (Kshetra) was suitable for the growth of the germ-seed. It is when the bodily constitution was undermined by the non-observance of the Laws of Health such as Ritucharya (Hygienic rules for various seasons of the year), Dinacharya (Hygienic rules for daily conduct), Brahmacharya (Hygienic rules of celibacy or regulated sexual life) and Mithya Ahara and Vihara (unhealthy foods and practices), that the Kshetra (or soil) became suitable for the growth of germ-seeds, which were powerless to do any mischief in the case of those persons who led pure and healthy lives, because the Kshetra (or soil) was unsuitable for the germination and growth of the seed. Looked at from this standpoint, germ-seed is merely one among the many external causative factors of disease, like Trauma, poisons-nutritional abnormalities and so on. This fact is, in a way, recognized by Western Medicine also; for, we still speak of large groups of diseases, like Deficiency diseases, Nutritional diseases, Tumours, Malformations, and so on, whose causation is not attributed to germs at all, although some

germ enthusiasts are hard at work to find out causative germs for all diseases in general, it is because of the undue importance attached to germs, that it sometimes appears as though the germ theory was the whole of our Western theory of causation of diseases, while the fact is that it is but one among the many theories known to Western Medicine. Thus, lack of vitamins is held to give rise to a group of diseases like Rickets, Scurvy and Beri-Beri; abnormalities of internal secretions, to other diseases, like Myxoedema, Addison's disease, Acromegaly, etc. then again we have Tumours, Malformations, etc., whose causation has not yet been satisfactorily known. Ayurveda prefers to have but one theory, *viz.*, the *Thri dosha* theory, as sub heads of which it has not only the germ-theory but also every other theory mentioned above. Hence, when people talk of 'the *Thri dosha* theory *versus* the germ-theory', they are making the mistake of comparing the whole with a part, then again, there seems to be such exaggerated views of 'germ theory' that it is worth while re-emphasizing the fact that, even in its own line, the present germ theory is not the last word in medicine and that it is applicable to only one group of diseases. If one hundred people are exposed to the same bacterial infection or seed, it does not follow that all will contract the disease, in addition to the bacteria, you require a particular condition of the tissue soil—where the bacteria can take root and thrive. It seems as though the *Thri dosha* theory looks at the question more from the standpoint of the soil, while the germ theory looks at it more from the standpoint of the seed. "Keep out the seed—away with all germs and you are safe"—that is the slogan of the germ-enthusiast. "It seems impracticable to keep out the germ seeds which are ubiquitous. Therefore keep the soil in such a condition that no seed can grow, even if it gets in there." So urges the Ayurvedist. Moreover, can we definitely say that the Ayurvedist is wrong, even if he chooses to assert that the bacteria are the *result*, rather than the *cause* of diseases? Sir James Goodheart, an honoured name wherever Western Medicine is known, stated in the course of Harveian Oration for 1912 "Pathology is still shifting. We have not yet reached finality. Even *bacteria are probably results and not causes*." From what one may gather from the most recent Western literature on this subject, it seems as though there is now—even twenty six years ago when this Memorandum was first written—a distinct tendency to get away from the present position of attaching exaggerated importance to the germ seeds and to take up instead more or less the Ayurvedic position of attending to the 'soil' and keeping it in such a condition that the germ seed cannot germinate or thrive therein. This new tendency was apparently gaining ground so fast that even the lay press had begun to interest itself in the matter, as may be gathered from the following extracts from a remarkable leading article in the *Times* (London) on the germ theory of disease. "A decade ago it

was confidently affirmed that if the 'seed' was present, the noxious plant could be counted on to grow; in other words, that infection was the one essential preliminary to illness. This idea led to the active campaign which were organized against various bacteria, the hope being that their abolition would result in the abolition of the disasters occasioned by them. Medicine has largely abandoned that hope, for it is now certain that the 'soil' as much as the 'seed' determines the outcome. There are in fact, disease-proof individuals and other individuals whose susceptibility is much greater than normal. Susceptibility, too, can be won or lost. The minds of many workers are turning to this aspect of the subject, for it is already abundantly clear that control of human resistance offers a brighter future than direct attempts to eliminate disease. For example, it is easier to replace sandstone grinding-wheels by wheels made of emery than to stamp out the tubercle bacillus—yet the effect, it would seem, of the easy method is similar to that which the vastly difficult one might be expected to produce. It is easier, too, to supply children in winter with an adequate supply of butter or other animal fat than to sweep their nurseries clear of the germs of pneumonia or bronchitis. The butter in this case makes the 'soil' unsuitable for the 'seed'." It will thus be seen that the Ayurvedic conception of germ-caused diseases, as of diseases generally, is essentially a sound one, even in the light of the most recent findings Western Science.

Pharmacology

Importance of Study

There are many well-meaning practitioners of Western Medicine who, while admitting readily, and even enthusiastically, that there are a good many drugs and medicinal preparations of Ayurveda which are of decided therapeutic value, are nevertheless of opinion that it is not necessary to study Ayurveda to know the use of these remedial measures and that practitioners of Western medicine may well be trusted to use them in the light of their own pathology, diagnosis, pharmacology and the like. This, to my mind, seems an unscientific procedure, which, if really put into practice, may easily be attended with dangerous and even disastrous consequences, more especially in the case of those highly potent remedies used by practitioners of the Siddha system; such use of indigenous drugs and remedial measures would be as unscientific and dangerous a quackery, as, for instance, the use of vaccines, sera, and hypodermic remedies by Ayurvedists who have not learnt the science on which their use is based, though, by a little practice, they may easily learn the art of hypodermic or even intravenous injections. If this is borne in mind, one can easily understand why Ayurvedists object so strongly to the value of Ayurvedic or indigenous drugs being tested and judged by persons who have not made any understanding study of Ayurveda. But, without such a study, the use of Ayurvedic remedies by

practitioners of Western medicine may really be, as I said before, unscientific and dangerous quackery.

Dravya Rasa-Veerya-Vipaka Prabhava Pharmacology

According to Ayurvedic Pharmacology the several factors which govern the action of drugs are the following

(1) *Dravya*—This has reference to the Panchabhutic constitution of medicinal substances, according as they are Parthiva ("Earthy"), Apya ("Watery"), Taijasa ("Fiery"), Vayaveeya ("Airy") or Akasheeya (Etheric). As we have already seen in the discussion of the Panchabhuta theory, the significance of these terms is not at all brought out in their literal English translations. To the Physicists and chemists of Hindu thought, these terms denote the five classes of objective Matter related to the subjective sense impressions resulting from their contacts with our five Indriyas (or senses). To the Ayurvedists, however, they mean far more, in addition to the primary meanings given by Physicists and Chemists, they have added certain secondary meanings relating to their gunas (attributes) and karma (actions) which are of great significance to them from the standpoint of physiological actions and therapeutic uses, as may be gathered from the following illustrative description of a Taijasa ("fiery") substance. "A thing or substance, which is heat making, pungent and keen, subtle in its essence, permeates the minutest capillaries, and is dry, rough, light and non mucilagenous in its character and has preponderance of Rupaguna and a Rasa ("Taste") which is largely pungent marked by a shade of saline, is called a substance of the dominant principle of fire (Taijasa). Such a thing naturally evinces an up coursing tendency in the body, produces a burning sensation therein, helps the process of Digestion, etc and the spontaneous bursting of abscesses etc, increases the temperature of the body, strengthens the eyesight, improves the complexion and imparts a healthful glow to it" (Sushruta Sutrasthan—Chap 41). Similar descriptions are given in regard to other classes of Panchabhutic substances.

(2) *Rasa*—A technical term, rather difficult to translate, though it is generally rendered as 'taste' but, as will be shown below it means much more than what is conveyed by its literal meaning. It has reference to the direct and immediate action of a drug when it comes in contact with the organ of taste. As in the case of Panchabhutic Dravyas, the term "Rasa" also has certain secondary meanings which are of great significance from the physiological and therapeutic standpoints.

(3) *Veerya* (*Potency*)—This is of two kinds—Ushna (literally 'hot') and Sheeta (literally 'cold') these literal translations are very unsatisfactory, because they emphasize the temperature factor which is not intended in the original. This becomes more obvious when I say that, according to some authorities, Veeryas are not of two kinds only

as mentioned above but of eight kinds—Ushna, Sheetā, Snigdha, Ruksha, Vishada, Pichchala, Mridu and Theekshna.¹ These technical terms are, however, 'not to be interpreted in the sense of their literal English renderings. The term 'Veerya' seems to have reference to the ultra-chemical actions of drugs. Ayurvedists take very great pains, to extract, as it were, the Veerya factor of drugs, which, they say, is capable of producing the desired results, overcoming the action of both Rasa and Vipaka.

(4) *Vipaka*.—This has reference to the action of a drug after it has undergone digestive and assimilative transformation. Vipaka can be used to overcome the action of Rasa but is itself overcome by Veerya (or potency). It is generally held to be of three kinds—Katu (pungent), Amla (sour), and Mathura (sweet).

(5) *Prabhava (specific action)*.—Where two drugs show agreement in respect of their 'Rasa', 'Veerya' and 'Vipaka' but are yet seen to show a difference in respect of their therapeutic action, such a difference is said to be due to 'Prabhava.' As an example of 'Prabhava', I may take the following from Charaka-Sutrasthan—Chapter XXVI—"Chitraka (*Plumbago Zeylanica*) is Katu (pungent) in Rasa and Vipaka, and Ushna (hot) in Veerya. So is Danti (*Baliospermum Montanum*, or *Croton Polyandrum*). But Danti operates as a purgative, while Chitraka does not."

As in their analysis of Matter and Etiology which have already been considered and of Diagnosis and Treatment to be considered hereafter, so also in their analysis of pharmacological principles, the Ayurvedists seem to have aimed at the formulation of certain general laws and classifications, which, possessing, as they all did, the characteristic element of completeness and adequacy for all time, helped their followers, not only to understand clearly what was known to them already but also to get a general grasp of things, as they would become known to them from time to time. Take, for instance, their conception of 'Rasa' or 'Tastes.' To the Ayurvedist, the 'Rasa' of a drug denotes much more than what the term 'Taste' conveys to the student of Western medicine; there are certain general laws, by the application of which, he associates every 'Rasa' or 'Taste' with a number of definite physiological and therapeutical actions in terms of 'Dosha,' 'Veerya,' 'Vipaka' and so on, so that by a knowledge of these laws, he claims to be able not only to utilize an appropriate Rasa or combination of Rasas in the correction of a particular type of Doshic morbidity but also to infer by the 'Rasa' of new substances that become known from time to time, what their physiological and therapeutical properties are likely to be. To take an analogy from Western medicine, I may instance the case of 'Bitters,'—a term, with which are generally associated certain therapeutic properties, such as, for example, the

property of acting as a crminative or a febrifuge, etc., but, such examples are only isolated features in Western medicine, while, in Ayurveda, the subject is thoroughly systematized into regular scientific categories all articles of diet, drug, etc., have been systematically classified under the six primary tastes—Madhura (sweet), Amla (acid), Lavana (saline), Katu (pungent), Thikta (bitter), and Kashaya (astringent), so that, by knowing under which of these groups an article of drug or diet comes in, one can get a general idea of its physiological and therapeutic properties. Similar classifications exist for Dravya (as seen above), Veerya, and Vipaka, and there are also subsidiary rules governing cases where there is disagreement between indications of 'Rasa,' 'Veerya, etc. All known articles of diet and drug, and even the various phases of human activity (such as, exercise, sleep, study, bathing, and every other conceivable phenomenon) are systematically classified according to their physiological and therapeutic properties. There is a wealth of valuable information on these topics given in Ayurvedic classics like Charaka and Sushruta, relevant portions of which may be studied with profit by those interested in the subject.

Diagnosis and Treatment

Examination by the Senses and Interrogation

In general, Ayurvedic methods of Examination for purposes of Diagnosis are similar to those of Western Medicine, but the method of approach as well as the nomenclature adopted are from the subjective standpoint so that all features that Western Medicine describes from an objective standpoint as "Examination by Inspection," "Examination by Palpation," "Examination by Percussion," Examination by Auscultation," "Examination by the Microscope" etc., would all come subjectively under one comprehensive category—"Examination by the senses"—whether such examination is by sense aided by instruments or by an unaided sense. Thus, Examination by inspection, palpation, percussion, auscultation, microscopy etc., are all "Examination by the senses" in some cases the sense may be *aided* as, for example, the sense of sight in Microscopic examination, the sense of hearing in Stethoscopic examination and so on or, it may be *unaided* as in the case of ordinary inspection, palpation, etc., but, whether aided or unaided, it is all "Examination by the senses"—a concise and precise description which is yet comprehensive and adequate enough to serve as a formula for all time, for we cannot conceive any method of examination, whether direct or instrumental, whether known already or may become known hereafter, which will not come under the description "Examination by the senses, singly are combined, aided or unaided. This feature of enunciating all comprehensive formulæ adequate for all time is a striking feature of Hindu Analytic thought generally, as has been noticed in all other

divisions of our present study. In addition to "Examination by the senses", there is also mention of 'Prasna' or interrogation so that the full formula "Examination by the senses and interrogation" will include all possible methods of examination whether known already or may become known hereafter. These several points are well brought out in the following extract from the evidence of the late Kaviraj Yamini Bushan Ray, M.A., M.B. & C.M., a prince of practitioners learned in both Ayurveda and Western Medicine: "The diagnosis of diseases is six-fold—by means of the five senses and also by interrogation. Western Medicine, looking at things from without, designates its diagnostic methods by the terms inspection, palpation, etc., but, our ancients, ever looking at things from within referred them all to the five senses and to interrogation which (interrogation) was a very comprehensive and highly suggestive method, including, as it did, references to all the numerous relevant factors of diseases such as *desa* (country), *kala* (time or seasons), *jati* (tribe), *satmya* (compatibility, that is to say, whether correlation with particular climate, country, season, previous illness, tribal peculiarities, etc., is or is not compatible to patient), *athanka* (the mode of onset), *vedana samuchraya* (the mode of development of ailment), *balam* (constitutional strength), *deepagnitha* (state of digestion and assimilation), *mutra-pureeshadi* (state of urine, faeces, etc.) and so on. If any physician of any climate or country follows the detailed maxims laid down for the thorough examination of not only the disease, but also of the patient; which examination was particularly insisted on by our sages, as being essential both for diagnosis and treatment, he is sure to do well by his patient and bring credit to his science and art."

Ashtasthana Pareeksha—The Eight Special Examinations

In every routine investigation of a case, the Physician is expected to pay special attention to the examination in respect of the following eight particulars :

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(1) *Nadi* (pulse Examination) : In Western Medicine, examination of the pulse is undertaken primarily for finding out certain features of the circulatory system; but, in Indian Medicine, it is undertaken to find out the State of disturbed doshas (*Vata*, *Pitha*, and *Kapha*) and of vital phenomena indicative of particular *Roga* (disease) and prognosis with reference to a particular *Rogi* (sick person). Examination of the *Nadi* seems to have been cultivated with special assiduity by Siddha physicians

who look upon "Nadi" as indicative of the activities of the jiva (life principle) in the individual body and its orientation to Cosmic forces of Vayu, Moon and Sun manifesting as Vayu Nadi Chandra Nadi and Surya Nadi, corresponding to Ida Pingala Sushumna of our yogic and Tantric Literature. It is difficult to explain these things in the language of Modern Medicine because orthodox Physiology does not recognise the existence of any of these life principles.

(2) *Sparsha* (Tactile indications such as "Heat", "cold" etc.)

(3) *Rupa* (Visual indications such as : Lustre, colour of skin, etc.)

(4) *Shabda* (Voice indications such as voice being excited, strong, weak etc.)

(5) *Pureesha* (Fæces indication such as Constipation, Diarrhoea, colour etc.)

(6) *Netra* (Eye indications such as various colours of the conjunctive local swellings etc.)

(7) *Mutra* (Urine indications such as Colour, lustre, clarity, turbidity, density etc.) The examination of Urine is cultivated with special assiduity by our Unani Physicians.

(8) *Jihva* (Tongue indications such as colour of coating, existence of cracks undue dryness, undue moisture and such other features.)

Nidana Panchakam—Fivefold Investigation of Disease

The methods of investigation of Diseases are usually described under the following five heads beginning with Nidana and hence designated as Nidana Panchakam.

(1) *Nidana*—First comes the investigation of 'nidana' or the root cause of diseases, that is to say, of the particular causative indiscretion, such as, bad food, bad water, indulgences excesses and the like. This gives us clues to diagnosis and prognosis. But, as one nidana may possibly be at the root of more than one disease, Nidana alone cannot help us to diagnose diseases.

(2) *Purvarupa*—Next we proceed to investigate purvarupa, or the prodromata. This investigation helps the physician to correlate particular doshic derangement with a

particular group of prodromata and also gives him some clue to prognosis.

(3) *Rupa*.—Next comes the investigation of rupa or symptomatology, by means of which the physician is enabled to judge the special features of the developed stage of disease, of doshas, dushya etc, which indicate whether we have to deal with morbidity of one dosha, two doshas (dwandva), or all the three (sannipata); whether it is an affection of, rasa, rakta, mamsa, asthi, or any other dhatu or, dushya, and so on. The study of signs and symptoms was apparently pursued, by Ayurvedists with remarkable diligence and skill.

(4) *Upashaya*.—Next in order comes what is termed Upashaya, which is really a form of diagnosis by applied therapeutics, a measure not unknown to Western medicine. Let us say, the question is whether a particular ailment is due to the derangement of vata. We are in doubt. We then prescribe a diet, exercise or any other remedial measure known to cure this suspected derangement, which is then either ameliorated or aggravated. If it is ameliorated, then the hypothetical proposition is confirmed. If not, it is rejected.

(5) *Samprapthi*.—Finally, we have samprapthi, a term which is generally translated as pathology, but it is really much more because its investigation is conducted with a special eye to prognosis. It has reference to the following features —

(1) *Sanhya or number*.—That is to say, the number of varieties or types in which diseases may manifest themselves: thus—fevers in eight types, gulmas in five, leprosy in seven, and so on. (2) *Pradhanya or predominance* —That is, the predominance of particular dosha, or doshas. (3) *Vidhi or order or classification*:—That is, with reference to either the two-fold causes, viz., idiopathic (nija) or extrinsic (aganthuka) or to the three-fold classification of tridosha, or to the four-fold classification of curable, incurable, mild and severe types. (4) *Vikalpa or possible alternatives*—that is the ascertainment of the measure in which the doshas are excited in the combined doshic triad. (5) *Time of energising (balakala)*.—This is with reference to the time-factor, which energises diseases and makes them either atibala, madhyabala or heenabala (severe, moderate or mild) e.g., the seasons, the day, the night, the hour of eating etc.

TREATMENT

Categories of Treatment

तदेव युक्तं भैषज्यं यदारोग्याय कल्पते

सचैव भिषजा श्रेष्ठो रोगेभ्यो यः प्रमोचयेत् (Charaka)

That alone is the right treatment, which makes for health,
He alone is the best doctor who frees us from diseases

To provide for our people the best available medical aid that it is in our power to give should be the supreme objective of us all engaged in the study, teaching and practice of Medicine. To do our part in achieving this objective it is very necessary that we should keep ourselves constantly up to date and in continual touch, to the utmost extent that it is possible for us to do with the progress that is made all over the world. The adoption of such a course would come naturally and easily to followers of Ayurveda with its fundamental catholicity of outlook and comprehensiveness of approach. In many places in previous sections, I have pointed out that a characteristic feature of Hindu Analytical thought that strikes us everywhere in our studies is its flair for enunciating theories so complete in their conception so perfect in their Logic and so satisfying from a philosophical standpoint as to prove all comprehensive and adequate for all time—a feature which strikes us as much in our study of Treatment as in other studies. While firmly rooted in its time tested Siddhanta of Thridhoshic Physiology, Pathology and Therapeutics, it has nevertheless provided ready made niches or mansions to which therapeutical practices of proven utility from everywhere and of all times can be readily welcomed at all times. To make this statement clear, I give below the all inclusive categories under which Ayurveda arranges all possible modes of treatment (Chikitsa) of all times—past, present and future. *Firstly, it states that two fold are methods of treatment (Chikitsa) namely Vipareetha Chikitsa (Treatment by contraries) and Thadarthakari Chikitsa (Treatment by similars). Each of these show a natural three-fold subdivision as indicated below*

(A) *Vipareetha Chikitsa or Treatment by Allopathy in the sense of treatment by contraries or opposites.* This is of three kinds namely (1) *Hetu Vipareetham* or treatment by measures—Medicines (Aushadha) Diets (Anna) and Life activities (Vihara)—which are contrary to *Hetu* or cause of disease and operate for its removal, (2) *Vyadhi Vipareetham* or treatment by measures which are contrary to *Vyadhi* or disease (which is the effect) and operate for its removal (3) *Hetu Vyadhi Vipareetham* or treat

ment, by measures which are contrary to both *Hetu* (cause) and *Vyadhi* (disease) and operate for their removal.

In certain cases, the cause may disappear after producing the effect namely disease. In other cases it may persist and make for continuance or recurrence of disease. In the former case, only the disease has to be dealt with. In the latter case both cause and disease have to be dealt with. In some cases, it may be sufficient to deal with only the cause. If a burning lamp is so near the skin as to cause burns unless removed, the development of *Vyadhi* or disease called burns may be dealt with by removing the lamp (cause) to a safe distance. If, however, the disease has already developed so that blisters, loss of tissue etc., has occurred in some degree, the removal of cause, (the burning lamp in this case) is not sufficient. The lamp has to be removed and burns also treated. That is, both *hetu*, and, *vyadhi*, should be dealt with.

(B) *Thadārthakari Chikitsa* or Treatment by Homeopathy in the sense of treatment by similars. This again is of three kinds namely: (1) *Hetu Thadārthakari* or treatment by measures which are similar to the cause (*Hetu*) and operate for its removal. (2) *Vyadhi Thadārthakari* or treatment by measures which are similar to *Vyadhi* (disease) and operate for its removal. (3) *Hetu-Vyadhi Thadārthakari* or treatment by measures similar to both *Hetu* (cause) and *Vyadhi* (Disease) and operate for their removal.

It will thus be seen that the classification given above is all-inclusive and valid for all times and provides ready-made niches or mansions, to which fitting welcome may be extended, as stated before, to any form of treatment of proven utility that may be known already (whether it bears the specific label Allopathy, Homeopathy, Naturopathy or any other) or that may become known hereafter. There are, of course, practical limitations arising from the varying and limited capacities of individuals to acquire a sufficient knowledge of other presentations and incorporate harmoniously into their practice such things as are of proven utility in other practices. We know from our own experience and practice that such harmonisation can be done according to the measure of our individual capacity and opportunity. We know also of practitioners qualifying from Allopathic Colleges becoming votaries of Homeopathy, Naturopathy etc., later on and adopting them successfully in their practice.

The General Principles of Treatment—Treatment to be Based on Accurate Diagnosis and Prognosis

The general principles of treatment according to Ayurveda are indicated in the following extract from the written evidence of the late Kaviraj Dr Gananatha Sen one of the ablest and most successful practitioners of his day and a brilliant Sanskritist and Ayurvedic scholar learned in Western Medicine also

The *sine qua non* of proper treatment is of course proper diagnosis particularly with a view to our Tridosha pathology This done we have to ascertain whether we have to fight the intrinsic cause (i.e. मूल वैषम्य) or the disease itself also whether the case is Sadhya or easily curable Krichhra Sadhya or curable with difficulty or Asadhyā or incurable The last group of cases is either not treated at all or treated only to make the disease Yasya or tolerable

Samsodhana and Samshamana Treatment

Now let us first consider the *medical side of treatment* First of all we take note of the Samata (समता) i.e. presence or absence of auto intoxication (or antogenous toxicity) in every disease If auto intoxication is present we treat the patient by fasting purging etc within the limits of the patient's strength and tolerance till the symptoms of auto intoxication disappear These symptoms have been stated very clearly in a general way as also in particular for different diseases This line is called *samshodhan* or *clearing up treatment* As an example of this may be cited fasting or purging in some fevers as the first course of treatment If there is no auto intoxication we treat the disease directly (e.g. giving a febrifuge in fevers) This is called *Samshaman* or *putting down treatment* Both kinds of treatment are of course done with a clear grasp of the doshic derangement the removal of which is considered the ultimate goal of treatment

Panchakarma or five Methods of Samshodhana Treatment

In this connexion it is worth while to mention that there are five methods (Panchakarma) of the *samshodhan* or clearing up treatment There are (1) *Vamana* or the use of emetics for washing out the stomach (2) *Virochan* or the use of purgatives with a view to clear the upper or lower bowels Numerous purgatives have been described to suit various cases (3) *Shiro virechan* or the use of errhines to promote the nasal secretions—in diseases of the nose and throat generally in some diseases of the eye (as glaucoma) and in some forms of intractable head

ache and cerebral diseases. (4) and (5) *Asthapan* and *Anuvasan*, known collectively as *Vastikarma* which comprise the various forms of enemata, known and unknown to the Western science. To enumerate some of these, we may mention—(i) *Shodhana vasti* or *Niruha*, made up of medicated alkaline fluids (*Kashayas*) for clearing out the colon (ii) *Snehana vasti* or *anuvasan*, made up of similar fluid with copious oily substances in it—for clearing out the colon and soothing the pelvic nervous system. (iii) *Pichcha vasti*, mucilaginous enemata used as emollients to soothe the inflamed mucous membrane of the colon in colitis and other diseases. (iv) *Brihmana vasti*, or nutrient enemata used not only in extreme cases, where feeding by the mouth is not possible, but also in ill nourished patients who can take by the mouth. (v) *Bheshaja vasti*, or medicated enemata—similar to Bromide and Chloral injections in Western medicine. And so forth, hundreds of drugs and recipes are described for use under each of the heads above enumerated. So much indeed was the reliance in *Vasti Karma* in certain diseases that we read: वस्ति चिकित्सा र्धमिति वृषन्ति । सर्वो चिकित्सामपि वस्तिमेके ॥ ‘Enemata (*Vasthikarma*) constitute half the treatment if not the whole treatment as some physicians think.”

AYURVEDA AS AN ART

The Past and the Present.

In the palmy and progressive days of Ayurveda, the fathers of Ayurvedic Medicine were the foremost exponents and all-round practitioners of their times, teaching and practising *Ashtanga Chikitsa*, ‘the eight divisioned therapy’, comprehending medical, surgical and other branches included in the term ‘*Ashtanga*.’ To those who are apt to judge the past of Ayurveda by the conditions of the present lack of self-sufficiency—especially in the Surgical field, a description of the striking achievements of the past even in the Surgical line as given in the *Encyclopædia Britannica* (Vol. XXII—P 672—9th Edition) may serve as a useful eye-opener. History has recorded that Medical students from all parts of the world came for post-graduate study to the Medical Faculty of some famous university in India, as the one at Taxilla or Nalanda. The field of activity of our Physicians and Professors of those days was not confined to India but extended from Greece, Persia and Arabia in the West to China, Java and other countries of Greater India in the East. Indian Professors and Practitioners of Ayurveda were then warmly welcomed by Royal Patrons in other

countries. They practised under Royal Patronage and exchanged thoughts freely with practitioners of those countries. The treasures of Ayurveda were translated into the language of other countries—Persian, Arabic, Chinese, etc., and a number of remedies of proven utility used by the Arabians, Persians and Chinese were incorporated into Ayurvedic Pharmacopoeia, but, due to various causes—political and others which need not be gone into here, this palmy and progressive period was followed by dark and decadent days for Indian Medicine as for many other branches of the learning and wisdom of India. State recognition and state patronage was withdrawn from Indian Medicine and transferred to the Western Medicine of our Rulers. This led to stagnation, obstructed progress, stunted growth and partial functioning from the effects of which Indian Medicine is still suffering, but, even under the severe handicaps it has been subjected to it is Indian Medicine that is still ministering to large sections of our Public—especially the rural millions in whose hearts it still finds a place of grateful appreciation and abiding affection.

Examples are not wanting even in recent times to show how treatment of even new diseases could be successfully undertaken by practitioners of Ayurveda, by the application of their fundamental principles of Diagnosis and Treatment which have served them well through the ages. When virulent epidemics like plague and influenza first broke out in India some years ago, practitioners of Ayurveda were quite equal to the task of devising, on the basis of tridoshic pharmacology and therapeutics, new remedies which proved at least as successful as the remedies then devised by any other system of Medicine. "Haimadi Panakam" and "Shathadoutha Ghritam," the remedies devised by the late Vaidyaratna Pt. D. Gopalachari for plague, were looked upon as specifics by the Public and used by a large number of practitioners, including Allopathists. Similar was the case with his "Charaka Vati" for influenza. It is not only in respect of new diseases that they have devised new remedies and methods of treatment. They have realised all along that even ancient diseases exhibit variations in their manifestations from age to age, and country to country, as also in relation to changing conditions of individuals and their social and other environments, and they have gone on taking due note of all these factors as they occurred and adjusting remedies and diets appropriate to the changed and changing conditions.

Furthermore, it has to be noted that the ministrations of Indian Medicine are sought after not only by the vast masses of

our unlettered poor whose faith, affection and preferences are rooted in Indian Medicine but also by well placed persons of light and learning in all walks of life, including rich intellectuals who could well afford to obtain the services of Western Medicine if and when they want it, also by some practitioners of Western Medicine itself in the treatment of some of their patients and of the members of their family including themselves.

All realists have therefore to take note of the fact that the practical and survival value of Indian Medicine is decidedly high, as may be gathered from the fact that it is Indian Medicine that has ministered for millennia to the medical needs of the vast masses of our population and that, even to-day, and notwithstanding the very adverse conditions which it has been subjected to for over a century and a half, it is Indian Medicine that ministers to about 80 to 90 per cent of our teeming millions especially in rural areas whose faith, affection and preferences are rooted in Indian Medicine while it is only 10 to 20 per cent of the population living mostly in Urban Areas that are served by Allopathic Medicine, notwithstanding the fact that, for over a century and a half, it has enjoyed almost exclusive monopoly of State-patronage, State-support and State-munificence. Under these circumstances, it was a disservice to the cause of both Science and suffering humanity that previous Governments should have ignored or discouraged an agency with such proven practical and survival value as that of Indian Medicine. This mistake has now to be set right and that as quickly as possible.

The Science and Art of Indian Medicine is part and parcel of our invaluable cultural heritage which should be zealously preserved, fostered and promoted at least in India and for the greater service to the cause of Science, suffering humanity and the generations that are to come after us. If it is ignored in India itself, where else could we expect it to be cherished as the Science and Art of such proven, practical and cultural value deserves to be cherished.

Nutrition, Sick-Dieting and Domestic Medicine

In his Presidential Address to the Association of Physicians of India about four years ago, Dr. Jeevaraj N. Mehta observed as follows in regard to nutrition and Dietetics — 'The subject of nutrition has been, for several years, the concern of most countries in the world.....We are still very far from evolving an Indian dietary on modern scientific basis.....Though modern scientific medicine has been with us for over a hundred years, we

have not yet evolved a dietary suitable for those with vegetarian habits, either in acute illness or during the stage of convalescence " If modern medical science has not yet been able to solve the problems stated above, during these hundred years or more, will the votaries of modern medicine condescend to examine whether the ancient Medicine of Ayurveda has anything to contribute to the solution of the said problems? If they take the trouble to acquaint themselves with the texts and traditions on the subject of 'Pathyapathya' they will find that the dietaries suitable—(Pathya) and unsuitable (Apathya) for each disease and for various stages of the disease have been worked out. So too there are texts and traditions relating to the subject of Nutrition and the properties of the articles of foods and drinks *in common use in India*. The approach to the subject is, however, somewhat different. It is on the assumption that a living human being is not merely a material entity but essentially a spiritual being so that the problem of his nutrition is not merely a question of Physics and Chemistry, of calories and vitamins—natural or synthetic (important as these are) but also a question of psychological and spiritual values and of providing nutrition suitable not only for his physical body but for his *emotional and mental* bodies as well. There is a very close interdependence of the nutrition to these several bodies—specially in the case of intellectuals, scientists, poets, philosophers, mystics, statesmen and people in general with outstanding qualities of head and heart as distinguished from people whose work is symbolised by the hand such as manual labourers and other similar workers. The nutritional needs of all these have to be considered separately and individually. The close interdependence and interaction of of the physical and other bodies of living human beings will be dealt with later on under the head of Health Culture. Practitioners of Allopathy who are really interested in studying Ayurvedic texts and traditions on this question may however find it difficult to get at the original sources because they are written in Sanskrit or vernaculars with which they are not acquainted and also because the information required is scattered over many books so that reference to a single work will not be sufficient to give full information in every case. I think it is our duty to render all the help we can to genuine enquirers. The best way of doing this is to arrange for the compilation and publication of treatises in which knowledge found in many sources is gathered into the compass of a single comprehensive work. Similar remarks apply to the question of compiling treatises on *Grihavidyā* (the subject of house

hold remedies and preparation of diets in health and illness) a working knowledge of, which was well known to our grand mothers less known to our mothers and least known or not known at all to our sisters and daughters.

Health-Education and Health-culture .

Study and research concerning the cause and cure of diseases, the prevention of ill-health and promotion of health are doubtless essential in order that our knowledge in regard to these topics may grow from more to more ; but it is also essential that methods should be devised whereby a portion of such knowledge as is necessary is communicated to each individual in the community in order that he may make it his own and co-operate intelligently in carrying out measures intended to prevent diseases and promote health. If we are to profit by the experiences of the west in this respect, we have to realise that the programmes of Health-Lectures, Health-demonstrations, Health-films and other forms of propaganda carried on till now have proved insufficient for achieving the supreme objective of all Health culture, viz , the formation of the *right habit*—the health habit if you please—which would enable a person to *behave habitually correctly* under all circumstances, to follow hygienic ways and avoid unhygienic ones as a matter of unconscious or automatic behaviour, exactly as a properly educated gentleman would act correctly and behave gentlemanly under all circumstances merely as a matter of right habit (resulting from right training) and without any need to think in each case whether it is correct to set in one way or in another. The ideas in my mind in regard to the causes of the present unsatisfactory situation and the way to deal with them are so well expressed in an Article by Dr. Atkinson, former Commissioner of Health for Western Australia that I beg leave to give below a summary of his article using his own words as far as possible : The results of the present-day methods are appallingly slow ; the ignorance of the general public in regard to even the simplest principles of Hygiene is still colossal. *If we have succeeded in imparting the knowledge, we have not succeeded in persuading the great majority of individuals to apply it.* If facts are pushed before them, they wake up temporarily and take notice, but tend to forget readily and fall back into ignorance. Our literature pushed under the noses, is casually read and thrown away. Our lectures are attended by the few and for the most part by those already so instructed in the subject as not to need them. Our lantern slides are viewed out of curiosity ; and if amusing are

appreciated for the laugh they invoke rather than for the message they convey. And so, much of our time is wasted. It is all so temporary in its effect and so casual and infrequent in its presentation. It does not arouse permanent interest nor retention. In other words it does not stick. Now the question is to consider what it is that has led to this unsatisfactory result. The answer is that it is because we approach the question in the wrong way, in that we endeavour to teach it as we would a science, academically, instead of trying to develop it as a sense—the Public Health sense if you like—a sense of right and healthful communal and individual living. Now, how may this sense be developed? The answer is that it *must originate with first impressions very early in life*. If the parents themselves had this public health sense and knowledge developed from their infancy, they would unwittingly develop it in their offspring. The imitative infant watching its mother convey food to the mouth might equally well watch her drive away the flies from milk jug and cover the jug. During this infant stage, the teachers of the very young can do a lot through stories, nursery rhymes and the like. Why not invent stories with a definite health value, stories that will whilst being of a nature to hold the child's interest and remain in his memory, convey real facts and principles of value in later life. What an opportunity we are missing! Just think how tellingly one might describe the adventures of a ghoulish fly which laid its eggs in the manure heap of the palace stable, how out of these eggs came a legion of other ghoulish flies intent upon slaying the princess' baby; how they fed upon filth which they carried to the golden cradle and with which they contaminated the baby's lips. The baby thereupon sickens and the distracted princess calls for a knight who will go forth and swate all flies or better still destroy all fly breeding manure heaps, and then, think too, of the illustrations that may accompany this story and help to keep the moral alive for evermore, so too think of the nursery rhymes, what an opportunity to hash up our hygiene in never to be forgotten forms.

If we wish to see that every individual has his health sense so well trained that living and reacting hygienically under all circumstances is with him a matter of unconscious behaviour and that his pursuit of hygienic acts and avoidance of unhygienic ones are both done as a matter of correct habit, then, it is necessary to *begin health education and health training right from the very commencement of infancy through nursery rhymes and songs for little children, through poetical or musical recitations,*

memory-aiding jingles and interesting stories for the children at the primary school stage; through themes in dramas, poetry, prose, music, painting, cinemas, etc., for adolescents, aided in all cases by right examples of parents, guardians, teachers and others who may serve as examples. The fundamental idea should be that in every case health-knowledge should be presented in a manner which is interesting enough to grip the attention of the child and make a lasting impression on his memory; it should be unobtrusive yet persistent; not occasional, academic lessons chilling to the child and divorced from his life-activities but regular events of his daily routine *both at home and at school*, so planned that by constant practice the child acquires the HABIT of right living as a joyous and almost unconscious function of life-activity. It should be quite a feasible programme to revive the ancient nursery rhymes and songs, stories and ballads, the Ahara-vihara Vidhis and the like in a manner that are suited to modern conditions; we have excellent models as, for instance, in the chapters on Dinacharya (rules of daily conduct), Ritucharya (rules for the different seasons) and the like, which are found in all ancient books on Medicine, not to speak of the wise sayings scattered in many other sastraic works, specially the Grihya sutras and Dharma Shastras such as those of Manu, Yajnavalkya and Parasara. There are certain unique excellences in our ancient models which, one would very much wish, modern medicine may follow with advantage. The ancients loved to express themselves through verses which were at once classic works of mellifluous poetry as well as standard works of medical science, with the result that their appeal was lasting and widespread; the verses were easily and eagerly committed to memory and treasured up as permanent possessions not only by the students of medicine but by many others as well. Another and a most precious feature of our ancient health-maxims lies in the very strong emphasis that is laid everywhere on the profound truth that the health of the body is very closely interrelated with the health of the emotions and the mind and that, therefore, it is as vitally necessary to provide the latter with Ahara (food) and Vihara (practices) that they need as it is necessary to provide the physical body with the food and practices it needs. Time there was, and that not long ago, when it was the fashion to hold up to ridicule the ancient Ayurvedic teaching that certain emotions like anger, sorrow, fear, hatred, jealousy, etc., would make for ill-health while certain others like affection, charity, contentment, compassion, joy, etc., would make for good-health. This was ridiculed as an evidence of the incurable

habit of our ancients to go about mixing up scientific laws with rules of ethics on the one hand and superstitious beliefs on the other. Fortunately for all concerned, the times are now fast changing and the discoveries of modern science itself are seen to confirm the ancient teaching. Modern science seems now to be prepared to explain that with every fit of anger, rage etc., there will be a corresponding unhealthy stimulation of the adrenal or other glands which, if frequently repeated, may lead to such exhaustion of the affected glands as to result in, say, Diabetes, Neurasthenia, Dyspepsia etc. Modern science seems to be prepared to look for even *epidemics of emotional disorders* similar to epidemics of physical disorders, for instance, in the statement of an American doctor that 'when stocks go down in New York, diabetes goes up.' It will perhaps be explained that widespread financial crash results in widespread emotional crash of a specific nature which in turn leads to a correspondingly widespread pancreatic bankruptcy, resulting in an epidemic of diabetes. Far from ridiculing the ancients as persons who knew no better than to mix up health and ill health with the practice and non-practice of the social and moral virtues, Modern science itself may well be prepared to preach an 'ethical' sermon, somewhat in the following strain. "If you habitually allow yourself to get into fits of anger or rage the result will be, among other things, unhealthy stimulation of your adrenal glands, leading perhaps to neurasthenia. If you habitually get into temper as often as you can, you will surely have to pay the penalty for it in the shape of dyspepsia and such other troubles. If on the contrary you are ever affectionate and cheerful, radiating sun shine wherever you go, you may safely trust to your own glands—both the ductless and the ducted, to keep you ever young and in radiant health. In brief, judged even from the most materialistic standpoint of sheer physical well being it will pay you exceedingly well to practise altruism, sobriety, cheerfulness, affection and other social and moral virtues, while avoiding like poison, passion, hatred, jealousy, anger, rage and other vices. Go about doing good, avoiding evil, and practising Sadachara (right social and moral conduct) as Nithyakarma and I promise you the very best of health and therefore of happiness." Thinking along such lines, it should not now be difficult for us to appreciate in our own measure the profound wisdom of the great Rishis of this ancient land who, in laying down precepts of our daily practice (Nithyakarma and Dinacharya), have ever proclaimed that what is essential for a healthy life is, first of all and most of all, to live nobly, to think clean thoughts, to feel noble emotions and

to behave rightly under all the varying conditions and circumstances of our lives. It is good to have clean bodies ; but clean minds are even more essential. It is good to keep our body clean and feed it on pure food ; but, it is better to take our food after a cleansing bath and with clean minds and pure hearts. Such is the ancient teaching which Ayurveda has ever proclaimed. Our great forefathers attached so much importance to the observance of rules of hygienic living as part of our daily routine that they incorporated them into rules of Sadachara or the Nithya Vidhi which it was incumbent upon everyone to carry out every day and throughout the day. These hygienic rules of Sadachara or right conduct meet us everywhere—in the Srutis and Smritis and Dharma Sastras, Ithihasas, Puranas Medical and other scientific treatises, Popular songs, Kavyas, Natakas and Literature in general, as though they desired that every-body should become drilled in the habit of healthy living, no matter what his special study or avocation may be. We have now to re-edit the ancient rules of Sadachara laid down for the conditions which obtained in the spacious and leisurely days of old with its peculiar social, religious, economic and other environments so as to adapt them to the much altered conditions of the rural and urban lives of our modern days.

Is Ayurveda Self-Sufficient at Present ?

While the immense popularity and practical efficiency of Ayurvedic practice in the Medical line are of undeniably high value as are also the Ayurvedic writings and traditions in regard to Health-culture, Dieting, Domestic Medicine, Nutrition, etc., it does not appear that Ayurveda is self-sufficient in the surgical line as practised at present (i.e. twenty-five years ago when this Memorandum was first written). Such is the opinion of a scholarly exponent and successful practitioner recognised as an eminent authority on Ayurveda, the late Kaviraj Dr. Gana Natha Sen who has referred to this aspect of the question in the following terms: "Whatever may have been the past glory of Ayurveda it would be self-deception on our part to think that we still sit on a high pedestal. The number of Ayurvedic physicians in India is legion but soundly educated exponents of the ancient system are not numerous. Besides, there is yet a good deal of conservatism, which is contrary to the liberal spirit of Ayurveda which must be overcome. Much of the old valuable literature has been lost and what exists is not often studied in a scientific spirit. If the sound principles and methods of treating diseases with the time-honoured recipes of reliable efficacy were not

there, the Ayurvedic system of medicine would have been dead by this time in the struggle for existence. So, let us not be slow in recognising the crying need for reform. We may have once made great progress in Surgery but we must confess that we now lag sadly behind. And even in the great departments of Medicine and Pharmacy which are our great pride and mainstay, we must work hard to demonstrate and utilize the principles of medicine that we have in our books. One may therefore be permitted to suggest that it is not in the interests of the public, the promotion of whose well being must alone be our paramount consideration, to shut out any useful means of medical, surgical or other relief, no matter whether it is of the European or of any other denomination."

The Short-Range Objective—Transition to the Synthesis of Indian and Western Medicine.

It is on the basis of opinions such as those noted above that The Madras Government Committee on the Indigenous Systems of Medicine observed as follows in their Report published early in 1923: "It seems to us that the first and foremost problem that we have to address ourselves is to see how we can make the Indian systems of medicine rapidly self-sufficient and fully efficient, for, unless and until this is secured, the problem of bringing adequate medical relief within the easy reach of our masses, especially, in the rural areas, will not become satisfactorily solved. Moreover, the establishment of institutions of Indian systems will, under these circumstances, remain a proposition of limited applicability, because it would involve the maintenance of *a double set of institutions, one, the Indian, to look after our medical ailments, and the other the European, to look after our surgical needs—an arrangement as uneconomical as it is unsatisfactory*. Some such arrangement may, however, become inevitable in the *transitional stage*, but this period should be as short as possible. We, therefore, consider that the most urgent and immediate concern for the State is to establish and also to promote, by State aid, State recognition, and such other means, the establishment of suitable centres of medical education, and the devising of suitable scheme of studies of Indian medicine calculated to make those trained under it equal to the task of ministering, not only to our medical needs, as at present, but to our surgical ailments as well. Consistently with this view, we would like to see the future practitioners of India, no matter what denomination they belong to—Ayurveda, Siddha, Unani, European medicine

or any other—being so schooled and trained as to be able to bring to bear on the problem of health and ill-health, not only the expert knowledge of their systems, but, as far as practicable, the best that is in other systems also.”

The Long-range or ultimate objective—the synthesis of Indian and Western Medicine into a unified and integrated whole.

It is to implement the short-range objective noted above, that I have pleaded frequently that a working knowledge of Indian Medicine is to be acquired by the students of Western Medicine and a working knowledge of Western Medicine is to be acquired by the students of Indian Medicine through two types of institutions in both of which there would be provision for training in both Indian and Western Medicine but with emphasis on Indian Medicine in the one type and on Western Medicine in the other; but this, I have always stated, was to be deemed as only a temporary and transitory arrangement. The long-range or ultimate objective should be the synthesis of Indian and Western Medicine into a unified and integrated whole. It is by free exchange of thoughts and excellences that the Science of Medicine is enriched and Medical Practitioners of every country are enabled to serve their people better than they could do otherwise or in isolation. We should keep ourselves constantly up to date and in continual touch with current scientific thought and achievements of proven utility, arranging our courses of study in such a way as to enable those trained under it to prove equal to the task of serving the country successfully, efficiently and with distinction in all fields whether it be Medical Relief or Medical Education or Medical Research. This should be easy and natural for us; for, it has been the unique feature of Indian culture throughout the ages that while it has gone on assimilating the valuable and significant features of other cultures it has all the time remained fundamentally rooted in its own cultural excellences. It is because of this feature that Greco-Arabian or Western Medicine of yesterday which we call *Unani* has now been assimilated into and become part and parcel of Indian Medicine of to-day. Working along similar lines, we may confidently hope that Allopathy, the Western Medicine of to-day, will likewise get assimilated into and become part and parcel of Indian Medicine of to-morrow.

Compilations of New Text-Books of unified and integrated Medicine.

For achieving the objective noted above, the urgent need is the Compilation of new text-books containing the necessary

fundamentals of both Indian and Western medicine. For the early completion of the work of compiling such new and universal Text books it is necessary to provide for team work so that the preparation the of new text book on each subject is entrusted to a team of experts of both Indian Medicine (Ayurveda Siddha and Unani) and Western Medicine. The preparation of such universal text books incorporating the fundamental teachings of both Indian and Western Medicine and suitable for general use by every student of Medicine in India no matter what special Branch—Ayurveda Siddha Unani or Allopathy—one may wish to take up for Special or advanced study will, of course take some time. Meantime much may be done to expedite the achievement of our objective by arranging for the teaching of each subject in our existing Schools and Colleges of Indian Medicine by specially selected and full time teachers capable of developing their courses of Lectures on the lines of unified and integrated study so that their Lecture notes in each subject may well form the basis of the universal Text books we have in view. These teachers should be full time workers in the real sense debarred from having private practice but adequately compensated for the loss of income from such practice. There has also to be a competent Editorial Board to scrutinise the manuscripts of our new universal Text books and ensure uniform and unified treatment of each subject so as to give at least a minimal standard of information necessary for every Medical student in India. When the compilation of these universal Text books is completed there will be no need to continue to the transitional and somewhat wasteful practice of the present under which each subject is being taught in many of our existing schools and colleges of Indian Medicine by two sets of teachers and the examinations in each subject conducted by two sets of examiners—one for the part relating to Indian Medicine and the other for the part relating to Western Medicine.

As regards the language in which these universal Text books for All India use are to be written that should naturally be the National or All India language of our Universities, High Courts, Legislatures, Administrations etc. For over a century, English has served this purpose. It is now generally felt that it should be replaced by a national language of our own. Stated in this general way there is hardly any difference of opinion on this question but when we come to particular issues differences of opinion have arisen over the question of the particular language that should replace English as the All India State language and many other questions of a similar nature. It may be recalled

that soon after the attainment of our freedom on 15th August 1947, the sentiment for replacing English at once by our own National or Federal language was so strong that our Constituent Assembly passed a Resolution to the effect that 'our constitution should be in Hindusthani' and English and that the Hindusthani version should be the original for purposes of interpretation. We now know that the realities of the situation have forced on us our inability to implement this Resolution. Our constitution had to be framed in English as the original version. It is this English version that will be introduced in our Constituent Assembly; and the discussion thereon will also be mainly in English. It was an inescapable fact that those who were concerned with the drafting of our constitution could express themselves adequately only in English or far better in that language than in Hindusthani; and this, quite apart from the fact that many controversies have since arisen over the question whether our National or Federal language is to be Hindusthani, Hindi, Urdu, Sanskrit or any other and whether we may not follow the example of some independent multilingual countries in Europe and America and adopt, like them, more than one language as official or state languages of our Universities, Administrations, Legislatures etc. Much may be said, has been said and is being stated in support of one or more of these languages including even English, that great international language which is not quite a foreign language in India of the present day as it is the mother-tongue of one of the small minorities of our population. I myself have written elsewhere pointing out that Sanskrit was once our National Language and can again function as such if only we will it be so and begin to act at once to implement our will. It has functioned as the mother in the family of languages that constitute the many language of our classes and the masses. While it kept up the unity of the Country specially the Unity of our Culture which has always stood, above all things, for the enthronment of Spiritual and moral values, as the highest good, it also provided for variety in vocabulary, language-form and modes of expression of its many daughter languages. Their literary standards were all fixed on the pattern of Sanskrit originals; and it was Sanskrit that provided practically the entire literary material for them. When English replaced Sanskrit about a century ago, the unity was purely artificial, maintained by the political power of the ruling nation. English never touched the heart of the people; and one of the most potent factors in the agitation for political freedom was the cry to remove English from its position as State-language. By cultural wealth, by maturity, by

historical antecedents and by its hold on the people, Sanskrit could legitimately take up the place of the National language. In this connection it must also be recognized that Sanskrit is not merely an All India language, it is also an international language in the cultural sense. In practically all the Universities in almost all the countries of the world, there is provision for the study of Sanskrit, and Sanskrit is being learnt by a large number of students in all the countries of the world. Having said all this in support of Sanskrit being well fitted to become our National language, I nevertheless find myself, when it comes to the consideration of the question in which our Universal Text books are to be written *in the immediate present*, much in the position of those esthustiasitic supporters of the proposition that the original version of our Constitution was to be in Hindusthani who had neverthelass to reconcle themselves to the inescapable necessity at present of having the original version drafted in English and then translated into other languages of India. Our immediate necessity and objective is to compile Universal Text books for All India use these have therefore to be written in our All India State language. But, what is our All India language in the immediate present? Our leaders have not yet decided what it is to be. Meantime, controversies have arisen over the claims of Hindusthani, Hindi, Sanskrit etc., for the position of our State language and also over the question whether we may not have more than one State language to subserve different functions. Controversies have also arisen over the question whether the medium of instruction in our Universities is to be the State language or the Regional language (the Mother tongue), and this quite apart from the fact that the replacement of English by any other language could take place, not at once but only after 10 to 20 years according to varying circumstances so that, for the present and for some time to come English has to remain in its present position for many purposes. Faced with all these difficulties and controversies, our leaders may well leave the question of our State language to remain undecided for the present in the hope that the question will solve itself in the future as one or other or more than one of the contending languages which are now replacing English as the the medium of instruction in our High Schools and as the language of our District Administrations show sufficiently wide, virile and out standing development as to be accepted, by common consent, as our All India State language. Meantime the *status quo* would continue with English as the All India State language of our Administrations, Legislatures, Universities

etc. In this predicament and uncertainty regarding our All-India State language, what is to be the language in which our universal Text-books for All-India use are to be written in the immediate present? Reason and Convenience would favour the use of English in the immediate present and the translating of the English version into our various regional languages, so that uniform standards all over India could be better provided for; but sentiment would be against English; and sentiment could not be ignored altogether. Under such circumstances, our ultimate objective has to be effected in two stages as indicated below. Our Universal Text-books are intended for the use of Medical students all over India and have to give the fundamentals of both Indian Medicine (Ayurveda, Siddha and Unani) and Western Medicine, at least to a certain minimal extent considered absolutely necessary for all students of Medicine all over India. This is doubtless a stupendous task, for the satisfactory accomplishment of which it is necessary, as stated already, for different subjects being assigned to teams of competent and full-time experts devoting themselves wholly and whole-heartedly to the special work assigned to each team. The first stage, in this work is the preparation of combined text-books giving the fundamentals of both Ayurveda (including Siddha) and Allopathy, separately from Text-books giving the fundamentals of both Unani & Allopathy. These will have to be written in the regional languages and translated into English—till our All-India language in the immediate present and the common language through which the teachings contained in Text-books written in the various regional languages could be compared, collated and put together for common use and benefit. In the immediate present and till such time as the question of All-India State language remains undecided and we could not obtain scholars all over the country capable of writing Text-books in that language, which is accepted ultimately as our All-India State language, it is futile to demand that all the provinces and States should have Text-books prepared in Hindi, Hindusthani etc. Take the case of Madras as an example. Here we have the Siddha School of Medicine with its great history of past glory as well as of present achievement. Though the fundamental principles of Ayurveda and Siddha are common, yet the Siddha School has its own unique and valuable contributions to make, especially in the field of Medical Chemistry and the Therapeutics of mineral preparations prepared according to its own special Texts and traditions. Though these

valuable teachings form part and parcel of the knowledge and practice of many Ayurvedic Practitioners in this Presidency, yet they remain practically unknown outside this Presidency. These teachings are written in Tamil and in difficult Tamil too, with many blunders and peculiar expressions the interpretations of which are known only to certain scholars. These teachings of the Siddha School deserve to be made known all over India and even to the wider world beyond India. We may be able to get competent experts sufficiently proficient in both Tamil and English to be able to collaborate efficiently in our team of experts appointed to write Text books of Ayurveda (including Siddha) in Tamil and to translate them into English for general use outside the Tamil country, but if we demand that these Text books are to be written in Hindustani, Hindi etc., in the first instance it will be extremely difficult at present—perhaps impossible—to get Siddha experts sufficiently proficient both in classical Tamil and in Hindustani, Hindi etc., to be able to undertake the task. It is when the preparation of our Regional Text books is completed, that we will be in a position to commence the second stage and undertake the work of preparing our common or universal Text books for All India use giving the fundamentals of both Indian Medicine (Ayurveda Siddha and Unani) and Western Medicine. These will have to be written in that language which by then, will have been agreed upon as the All India State language of our Administrations Legislatures Universities, etc., and translations made into English for the benefit of those who know the regional languages only and not yet the All India State language. If, however the question of our All India State language will not have been decided even by then so that English is allowed to continue as the All India language of our Universities High Court, etc., (the sentiment of our pre independence days against English as a symbol of our slavery may, by then, have largely disappeared), then the Text books will have to be written in English and translations made into our various vernacular languages. In any case if we wish, as we ought to, to make the teachings of Indian Medicine widely known and to become readily available for proper apprisement and appreciation by savants of Western Medicine and for adoption by them of our valuable teachings into Western Medicine for the general advancement of the science of Medicine and the alleviation of human suffering in their own countries, then, the best way of implementing our wishes is by presenting our ancient teachings through the medium of English (now known almost throughout the world) and also through the language of Modern Science as

far as possible—a subject, to the great importance of which, both within and outside India, a reference has been made already. The important question of the role of English and the Vernaculars in any scheme of study in India was well summarised many years ago by the late Sri Ramanantha Chatterjee, the talented Editor of the *Modern Review* in the following words which have as great force and validity in these post independence days as in the pre-independence days when they were written.

“My idea is that our students should learn English for Culture, for purposes of inter provincial and international commerce and communication, for administrative purposes, for the political unification of India and inter provincial exchange of ideas, for keeping touch in all respects with the outer world, and for the acquisition of the latest modern knowledge. But, for the perfect assimilation of knowledge in childhood and youth, for the thorough and rapid diffusion of knowledge among all ranks and classes of the population, for removing the recent but growing intellectual and cultural gulf between our men and women and between the classes and the masses, and for stimulating originality in thought and its expression and in scientific and artistic achievement in the largest possible number of persons, the use of the vernaculars in all grades of University Education is indispensably necessary. All objections have force only temporarily, for, the most highly developed modern languages and literatures were at first no better than Bengali. In their case development was obtained by use, and it will be obtained in our case, too, in the same way.” What applies to Bengali applies equally well to our other regional languages (mother tongues) and to Sanskrit—the mother of the many daughter languages which have obtained their sustenance from Sanskrit throughout their growth and development into their present condition.

The Universal Brotherhood of Healers

I have been and am still a student of Western Science; and I feel I owe it more than I can tell. I feel also that the more one studies Modern Science and Modern Medicine, the more one begins to appreciate the immense value to the world of thought generally of the foundational tenets of Indian Medicine such, for example, as its views on Matter, on

Mind, on Prana and on its Thridosha Physiology, Pathology and the methods of treatment based thereon and on its conception of Health education and Health culture. It is after such comparative study that one feels like adapting to the present topic the well known saying "Who knows of England who only England knows" and saying to oneself "Who knows of Indian Medicine, who only Indian Medicine knows". I am also one of those who believe that it is not by a mere accident that Indian Medicine and Western Medicine have come into contact with each other, but that the contact is part of the plan of that Great Power which "sweetly and mightily ordereth all things" and is designed to achieve enrichment of our Medical and cultural heritage by assimilation of the valuable features of Western Medicine and of related Western culture. I hopefully look forward for a day and that, at no distant date, when Indian Medicine will not only become self sufficient in all its eight departments as of old but will also so influence the world of Medicine generally as to enable others to enrich their own Science and serve their own people better than they could otherwise do and when the existing problem of "rival systems" would cease and there comes into being a Healers' Brotherhood and Scientific Union in which the present day warring elements would cease from their quarrellings and meet as friends, colleagues and brothers in science and service.

Organisation of Medical Research

As Part of an integrated Whole of which Medical Education and Medical Relief are the other Parts

Medical Research thrives best when it is organised as a vital part of one integrated whole of which Medical Education and Medical Relief are the other equally vital parts. It is also the most efficient method for ensuring the best care for our patients and the best training for our students. Where work is carried on in such a way that the Teachers, Research staff, Clinicians and Laboratory workers are research minded all the time and the students are trained for a period of not less than four to five years in an atmosphere charged with such research mindedness coupled with the most careful, devoted and sympathetic attention to the sick and suffering, it may well be expected that research-mindedness of the right type will become a habit—a second

nature—with them and animate their work for the rest of their lives. This much desired result will be brought about more as a matter of unconscious and automatic activity than as a conscious and laboured effort at every step. It is when such reform is effected that we may reasonably expect to find Medical Research in this country assuming its proper role, freeing itself from the charge levelled against it by the Bhole Committee when they observed as follows in regard to Medical Research—or rather the lack of it—in our Country —“In Western Countries, Medical Research is undertaken chiefly in the various departments of the Universities, Medical Colleges and teaching Hospitals. Research is, in fact, an almost universal activity in such institutions and is regarded as a normal function. Broadly speaking,

Medical Research received little or no attention in the Medical Colleges of India. In his evidence Prof. A. V. Hill, Secretary of the Royal Society, said that in the Medical Colleges which he had visited since coming to India research was almost non-existent. Reverting to the same topic they again observe “The outstanding defect at the present time is the almost complete absence of organised Medical Research in the various departments of the Medical Colleges. It is true to say that, apart from a few noteworthy exceptions, Research in these institutions has been very badly neglected.

Prohibition of Private Practice

The *sine qua non* for Medical Research, Medical Education and Medical Relief to be so carried out as to produce the best results is the implementation of one of the vital and fundamental recommendations contained in the following observations of the Bhole Committee, “Whole time salaried doctors employed by the State should be prohibited private practice. In our scheme the same doctor will combine in himself, at the periphery, curative and preventive health functions and it seems almost certain that, without the prohibition of private practice his preventive duties will not receive the attention they require. As regards medical relief, there was a general agreement among those whom we interviewed that prohibition of private practice was essential in order to ensure that the poor man in the rural areas received equal attention with his richer neighbour’.

Clinical Research

Examples are not wanting even in recent times to show how treatment of even new diseases could be successfully undertaken by practitioners of Ayurveda by the application of those fundamental Principles of Treatment that have served them exceedingly well throughout the ages. When virulent epidemics like plague and influenza first broke out in India some years ago practitioners of Ayurveda were quite equal to the task of devising on the basis of thridoshic pharmacology and therapeutics, new remedies which proved at least as successful as the remedies then devised by any other system of Medicine. "Haimadi Panakam" and 'Shathadoutha Ghritham', the remedies devised by the late Vaidyaratna Pt. D. Gopalacharlu for plague, were looked upon as specifics by the Public and used by a large number of practitioners, including Allopathists. Similar was the case with his "Charaka Vati" for influenza. It is not only in respect of new diseases that they have devised new remedies and methods of treatment. They have also realised that even ancient diseases exhibit variations in their manifestations, from age to age and country to country, as also in relation to changing conditions of individuals and their social and other environments. They have gone on taking note of all these factors as they occurred and adjusted remedies and diets appropriate to the changed and changing conditions. We have to pick out from the very large number of reputed drugs, diets and remedies which texts and traditions prescribe for each disease, those which are found by Clinical Research to work most satisfactorily under conditions of the present generation. For Research in these fields, it is necessary to gather clinical data on a sufficiently large scale and check up results. It is desirable that such Research into the reputed values of the recipes and methods of treatment (including dietetics) followed in Indian Medicine is carried on in institutions where there are facilities for a hearty co-operation between practitioners of Indian and Western Medicine. The actual treatment should be left to practitioners of Indian Medicine while specially selected Allopathists (qualified in Indian Medicine also if available) should collaborate as Medical Registrars and maintain careful, detailed and accurate records of the Clinical features, diagnosis, treatment and daily progress of all cases treated in the Clinics and publish the results in such language as would enable the followers of Western Medicine also to benefit from them, if they wish to.

Pharmacological Research

Clinical Research will also serve as a valuable guide in fixing our programme of Pharmacological Research by helping us to pick out, from the large number of reputed drugs and remedies which texts and traditions prescribe for each disease, just those which have been found by Clinical Research to work satisfactorily under conditions of the present day and to be suitable to the constitution of our present generation. Chemical and Pharmacological Research may then fruitfully concern itself with such selected drugs and recipes instead of working, as is done at present, with drugs selected at random from the bewilderingly large number of drugs and recipes enshrined in texts and traditions and related to the diverse conditions and constitutions of many generations that preceded us as well as our own.

Research in Iatro Chemistry

Then, too, there is the wholly uncharted field rich in treasures of Iatro Chemistry—Bhasmams, Sindurams, Churnams, Kattu, Khusthai and the like used by Ayurvedic, Siddha and Upani Practitioners. Who would not like to know, for instance, what it is that makes Chandrodayam or Makaradhavajam, the Rasayanam and Amritam that it is, while its chemical equivalent, Sulphide of Mercury does not find even a passing mention in our official Allopathic Pharmacopoea? Chemical, Bio chemical and Pharmacological Research may well start investigations in these wholly uncharted and most fascinating fields of enquiry, but, these may not be sufficient to unveil the hidden secrets. It may well be that the pharmaceutical processes of Indian Medicine effect the transformation by bringing about some subtle and as yet mysterious changes in the Ultra Chemical, the Atomic or Nuclear regions or levels of Modern Physics. If so, it should be within the powers of those master minds of Science who have devised wonderful experimental methods to explore the hitherto uncharted regions of Nuclear Physics and even the course of the elusive and mysterious cosmic rays—it should not be difficult for such great scientists, to devise methods for revealing to us the plans and designs, orientations, lattice arrangements etc., according to which a life giving Rasayanam like Purnachandrodayam

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is created out of such common clay like Sulphide of Mercury and incidentally, to give a glimpse, however faint, into the mind of The Great Architect of the Universe where originate, according to the belief of many students of our Ancient Wisdom, those Archetyps as well as those immutable and unalterable Laws which govern the building up of all kingdoms of Nature including the mineral to which Purna chandrodayam belongs

The Physician of the Future

I also desire to invite attention to one striking feature of Indian Medical studies which has always seemed to me to be supremely worth conserving. In modern times, there have been discussions in academical circles concerning the relative values of the study of Humanities and the study of Sciences. There is a tendency to envisage these studies as though they were ranged in opposite camps and fighting each other for supremacy. The ancient Indian view has been to look upon these as complementary studies to be earnestly pursued by all aiming at cultural harmony and fullness. Hence it is that, in Indian Medicine, it has always been considered necessary that the training of the future physician should provide not only for the study of Medicine in all its branches so as to equip him with the capacity to see the many in the one and have the proper scientific orientation to the problems of health and ill health but also for the study of the Humanities, the classics, as will enable him to see the one in the many and have the proper Philosophical orientation to Life and its Vital human problems. In other words, the ancient scheme of studies was so ordered as to give to the world great physicians who were not only great scientists but also great humanists—a type of Physician vividly pictured for moderners in the following description of “The Doctor of the Future” by a western writer, Dr R W Wilson
“The Physician of the future will not, as is now usually assumed, be a

Scientist of the Orthodox type, a man with the technic of Laboratories at his finger ends and with the aim in his mind of elucidating the phenomena of Life in terms of Chemistry or Physics. Rather, he will be a Humanist—a man with the widest possible knowledge of human nature and the deepest possible understanding of human motives. He will be a cultured man, ripe in intellectual attainments, but not lacking in emotional sympathy, a lover of the Arts as well as a student of the Sciences. This is, indeed, no more than a projection into the future, of that gracious figure of the past—the great Physician who was also the great friend, philosopher and guide of every one from prince to peasant who sought his efficient and loving care and never sought it in vain. Such was the gracious physician of the past that is gone as will also be the gracious physician of the future that is to come—learned in the Science, skilled in the Art, endowed with the healing touch, free from greed or covetousness, kindly and compassionate, the man of strong will, clean life and pure heart, whose picture is portrayed for us in the following verse in Sanskrit ;

गुरोरधीतासिलवैद्यविद्यः पीयूषपाणिः कुशलः क्रियासु ।

गतस्पृहो धैर्यधरः कृपालुः शुद्धोऽधिकारी भिषगीदशः स्यात् ॥

APPENDIX B-II (2)

MEMORANDUM ON CONSTITUTION OF MEDICINE BY LT.-COL.

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Introduction

In the science of sociology constitution is defined as "the fundamental law according to which the Government of a State is organised and the relation of the individual and society as a whole is regulated." (1) The constitution of medicine may therefore be defined as the principles according to which the theory and practice of medicine is organised and developed in relation to the health requirements of the individual and community as a whole. A consideration of this subject should be of interest at the present time when many are desirous of seeing the development of a more suitable system of medicine than the prevailing Western system.

It is not for me, a practitioner of the Western Medicine, to eulogise the many contributions which it has made towards the

alleviation of human suffering and happiness of mankind I would like it to be considered that though its advances in the technical side have been most remarkable its theoretical structure continues to be presented to the student in the form of unconnected detail. Being based on science Western Medicine rightly begins with a study of the physics, chemistry and biology, but though psychology has yet to find a place in its curriculum, two years of the I Sc have to be spent in learning these subjects as pure science. In the pre clinical studies long hours have to be spent over detailed anatomy, physiology and pathology though it is generally accepted that a good deal of this could be helpfully pruned from the education of general practitioners and the remainder taught in a correlated manner. During the years of clinical study too much of the time is devoted to the study of specialised techniques though it is well known many of these are of doubtful value in daily practice. Due to the undue emphasis on training in the laboratories and postmortem rooms and with insufficient attention being paid to the bedside and fieldside study of man, the student finds himself in actual practice ill equipped to deal with even ordinary problems without the help of X Rays and laboratories. Hence the time and expense in diagnosing and treating is generally so great that the fruits of this system can only be enjoyed by the rich few. If medicine is to cater for the rich and poor alike and its knowledge is to be made more widely available for the common man, we, the doctors, must join hands in reforming the western system.

While much has been said and written about this aspect of medicine by many leaders in the West a proper answer to the following questions framed by Ryle (2) is still being awaited "How shall the medical education of the future, without further complications of or addition to the curriculum provide a better scientific and general training for the student could ensure a more organised and integrated approach to the clinical subjects, and, in place of accumulations of memorised but poorly correlated detail, a wider appreciation of first principles? How in the process shall it help to develop a breed of doctors better blessed with humanity and judgement, with simultaneous gain rather than loss to their scientific sense?"

Considering that many a problem in medicine could be solved by the historical method alone, in the following pages it is proposed to offer a few suggestions from the constitution of the ancient Unani Tibb in order that they may be of some use in the rationalisation of our own system.

My interest in Tibb dates back to 1937 when on being posted to Delhi as a Physician I became interested in the causes of the great popularity of the ancient Ayurvedic and Unani Medicines. I began to investigate the famous technique of Unani 'diagnosis from the pulse' but after having been an understudy to Hakim Farid-ud-din of Tibbia College and the late Hakim Nabina, I came to the conclusion that though health and disease being states of the body as a whole do manifest in the pulse, unless a set of special sphygmographs much more accurate and comprehensive than the Dudgeones instrument are invented it is impossible for any doctor or hakim to differentiate more than a few diseases from the pulse. In my Paper entitled "Epidemic of Oriental Sores in Delhi." (3) I had also concluded that the treatment of isolated sores by scraping was a relatively much quicker and a less painful procedure than the Unani method of disintegrating the sores with corrosive ointments. A theoretical study of the Unani system has, however, convinced me that it is not so much the investigation of Unani diagnosis and treatment as of the basic principles of this system which is likely to yield more fruitful results; to this aspect of the Unani I had already drawn the attention of the profession in my paper on the "Basis of Medicine." (4) In the following pages I shall present a few passages from the works of Avicenna (5) (980—1036 A.D.)—the Persian, who had not only systematised all knowledge of medicine upto his age but had made many original contributions, in order that they may be considered by the teachers of modern medicine.

I. Definition and scope of Medicine.

In the Western System generally little attention is paid to the definition of this all important subject. Too often the students are led straight into the dissection halls and laboratories without any instruction of what medicine precisely means and what is expected of the doctor. From whatever little is available in the medical dictionaries it appears as if medicine is no more than "an art or science of healing disease especially the healing of disease by administration of internal remedies."

(6) In contrast to this, Avicenna introduces us to Kuliya-t-i-Qanoon (7) or the General Principles of Medicine as follows:—

"Tibb is a branch of knowledge which deals with the states of health and disease in the human body for the purpose of adopting suitable measures for preserving or restoring health." (Kuliya-t-i-Qanoon, Part I, para. 1).

It is suggested that for the following reasons Avicenna's definition deserves to be whole-heartedly accepted by us —

- (i) The name Tibb (physic) which Avicenna gives to his medical system, being derived from Tabiyyat (Physics) denotes that it is based on physical laws and on no dogma or superstition,
- (ii) by describing Tibb as a branch of knowledge Avicenna plans to present his medicine not as a mere collection of technical data that could only be learnt by the select few but as a complete science of integrated theory and practice which is available for everyone desirous of gaining rational ideas of preserving and restoring health,
- (iii) by emphasising that health and disease are but states of the human body and not malicious influences inflicted by some outside agency, Avicenna adopts a more natural view of human ailments
- (iv) by including the subject of health Avicenna gives the Unani a much wider scope than to what has so far been available in the Western system,
- (v) by directing its studies towards health rather than disease Avicenna offers the much needed corrective for the Western system which is occupied more in the study of disease;
- (vi) by aiming at the preservation of health Avicenna's medicine promises to be well in advance of our time when to the neglect of habits, occupation, climate, and other social and allied factors we are still trying to prevent disease through the ordinary methods of municipal hygiene,
- (vii) by basing its studies on the human body Avicenna gives his system a constitutional approach which helps to lay the proper emphasis on a study of the 'soil'

2 Organisation of Medicine

As health and disease of man are the subjects of medical study the curriculum of medicine should comprise a knowledge of all the causes and conditions which enter into the constitution of man in health and disease

Until recently science had led us to believe that fundamental reality behind the constitution of all objects, was matter and energy. Hence organisation was regarded as being due to the

action of efficient causes on material causes. Chemistry which took up the study of matter found that minerals, vegetables and animals all alike were ultimately analysable into the now known 92 elements. Physics which investigated the efficient forces discovered that energies like heat, light, electricity were made up of measurable photons and wave lengths. It was on the basis of this precise physico-chemical knowledge and impressed by the many discoveries of science that medicine came to adopt the view that man was but a mere machine. Later from the recognition of 'purpose' in biology, medicine enlarged its concept of 'mechanism' by postulating a psycho-physical parallelism between a separate body and a separate mind. Now that science has come to the conclusion that matter and energy can no longer be regarded as being separate from one another and that behind them both lies a common energy. Medicine has begun to realise that man is neither a mere machine nor just the addition of some separate mind to a separate body but an organism which acts as a whole. Western medicine has, however, still to give us a coherent account of the physical and intellectual aspects of the man as a whole and to indicate his various relations both within as well as without in his apparently dead environment. Hence the following account by the Unani system which is based on the four Aristotlian causes deserves to be carefully considered.

According to Aristotle (8) complete knowledge of a thing is only possible if we learn firstly about its material or the stuff of which the thing is made; secondly the efficient cause which moulds it; thirdly, the formal cause, which determines its shape and quality and fourthly the final cause or the function or reason for which the thing is made. By adding to this conception of the causes his own idea of interaction Avicenna gives us the following view of man in health and disease:—

“(i) Material (Maddi) cause is the physical body which is the subject of health and disease. This may be immediate as the organs (a'za) of body together with their vital energies (arwah) and remote as the humours (akhlat) and remoter than these the Elements (arkan) which are the basis both for structure and change (or dynamicity). Things which thus provide a basis (for health and disease) get so thoroughly altered and integrated that from an initial diversity there emerges a wholistic unity (wahdat)

with a specific structure (or the quantitative pattern of organisation) and a specific type of temperament (the qualitative pattern)

- (ii) Efficient (Fai'hiha) causes are those which are capable of either preventing or producing changes in the human body. These are age, sex, occupation, residence, climate and other allied factors like the seasons habits, rest and activity both physical and mental, sleep and wakefulness, food and drink, retention and depletion and finally things inimical or otherwise that may be in contact with the body
- (iii) Formal (Sauryea) cause is the temperament (or the pattern of constitution as a whole) and the faculties which emerge from it and the structure (the quantitative patterns)
- (iv) Final (Tamamia) cause (or the purpose) is the functions which can be only understood by a knowledge of the faculties (the biological systems) and of vital energies (arwah) that are ultimately responsible for them. These will be described presently (Kuliyat : Qanoon, Part 1 paras 7—9)

From the foregoing it will be observed that

- (i) by making the Elements as the fundamental units of both structure and function Avicenna proposes to give us a concept of 'substance' which if accepted by science could help medicine to establish the necessary space time relationship between not only the various organs and functions in the body but also between the body and the outer world,
- (ii) by recognising in the efficient cause not only external but also internal factor Avicenna gives equal attention to seed and the soil,
- (iii) by including in the Formal cause temperament as the pattern of qualities as a whole Avicenna prepares the ground for a more wholistic view of man and his constitution,
- (iv) by deeming the origin of various functions as being from the vital force which in its turn is organised from the attracting and repelling energies of the Elements Avicenna gives us a view of life and dynamicity which could save us from the necessity of postulating an illogical dualism of the body and mind

It is on the basis of the foregoing view which encompasses both spatial organisation and the dynamic functions of man that the Unani gives us the following contents for its system :—

“Having disposed of the question of causes generally it may now be said that medicine deals with Elements. (The units of constitution as a whole), Organs (anatomy), Faculties (biological system) like the organic, vital and nervous and the various (physiological) functions connected with them. It also includes descriptions of health and disease and the intermediate state of the body together with their exciting causes like food and drink, air, water, residence elimination and retention, occupations, habits, physical and mental activities, age, sex and the various external influences. It, therefore, includes a discussion regarding (choice of) suitable diet, air, rest, medicines and operative procedures for the preservation of health and the treatment of disease.” (Kuliyat-i-Qanoon, Part 1, Paras. 11-12).

From the above it will be observed that instead of providing medicine with a basis of the Physics, Chemistry, Biology and Psychology, the Unani starts with the Elements, Temperaments, Humours, Faculties and Vital Forces which we have long since discarded. As, however, these conceptions are most fundamental to the Unani system and it is with their help that its theory and practice is organised, in the following manner, we shall have to inquire into their true significance.

“Having been termed as being knowledge it may be wrongly regarded as being purely theoretical. It must, however, be remembered that just as the various arts have a practical and a theoretical aspect and philosophy, a theoretical and a practical side, Medicine too can be divided into the practical and the theoretical. This division into theoretical and practical sides however has a different significance in relation to the particular branch (of knowledge) to which it variously pertains. While it is not necessary for us to enter into these differences (in regard to all branches of knowledge) in connection with the knowledge of Tibb, it may, however be stated that by describing it as having a theoretical and practical side, it does not mean that the

practitioners of medicine regard Medicine as having two varieties, i.e., one Theoretical and the other Practical. This should rather be interpreted that both aspects of Medicine constitute knowledge, the one which deals with the principles of medicine is known as the theory; the other which gives us knowledge of the practical procedure as its practical side. Therefore the theory of medicine is that which gives us only helpful ideas and not the description of practical procedures e.g., the knowledge that fever is of three types and temperament has nine varieties, and in the same way the practical side of the medicine does not mean the actual performance of (some preventive or curative) act, but that this side of medicine gives us a rational description of the various practical procedures (employed in the cure of disease) e.g., during the early stages of acute inflammation restorative, cooling and thickening medicines should be employed and a little later relaxing medicines may be added to the restoratives. From the period of acme to that of decline only relaxing medicines should be used but this rule will not be applicable when inflammatory process has followed the affection of some vital organ. It is from a knowledge of this kind that one learns the rationale of (medical) practice. By learning these two one can acquire knowledge of both theory and practice (of medicine) even if one may not be in its actual practice (Kuliyat-i-Qanoon, Part 1. para. 3).

3. Basis of Medicine

Avicenna enunciates for his medicine the law that :

"a state cannot exist without a cause."

In this way he gives Unani Tibb the same deterministic approach which characterises our own system. Indeed by reiterating that :

"complete knowledge of a thing is only possible if we elucidate its causes and antecedents" (Kuliyat-i-Qanoon, Part I, para. 6).

he goes on to provide the Unani Tibb with the spirit of enquiry so necessary for the growth of any science. From the following it will be observed that his methods, however, differ from those of our medicine.

- (1) "The various organs and their functions have to be recognised by individual experience and analysis. (Hiss and Tasbrih)
- (2) "Some of these matters can be easily proved by reason and logic but the others are mere hypotheses and for practical purposes have to be taken for granted by the practitioners of medicine. These have been taken from natural philosophy (science) and as such cannot be disputed as in all secondary branches such principles are accepted 'a priori' and it is only in the main branches of knowledge that they are discussed and argued until their discussion merges into (pure) Philosophy and Metaphysics, which comprise them." (Kuliyat-i-Qanoon, Part, I paras. 13-14)
- (a) "Things which have been inferred by reason are the diseases, their particular causes, symptoms, treatment and appropriate methods of prevention. These are matters which have to be rationally explained to the full extent in reference to both space and time (miq-dar and waqt)." (Kuliyat-i-Qanoon, Part I, para. 17)
- (b) "Things which the physician has to recognise and accept without proof as being true are:
 - (1) Elements and their number. (2) Existence of Temperaments and their varieties (3) Humours, their number and properties (4) Faculties, their number and location (5) Vital energies, their number and location (6) The general law that a state cannot exist without a cause and the varieties of causes. (Kuliyat-i-Qanoon, part I, para. 16)

If a physician like even Galen were to undertake a logical explanation of these he will be discussing the subject not as a medical practitioner but as a Philosopher and would thus be like a jurist trying to justify the correctness of the majority opinion. This of course, he might do not as a Jurist but as a man of knowledge. However, it is not possible either for a practitioner as such or a Jurist in his own capacity to prove such matters by logic and reason and if he does so it will be at his own peril." (Kuliyat-i-Qanoon, Part I, paras. 18-19)

In regard to the method of observation and analysis recommended for the study of anatomy and physiology there can be

no difference of opinion between the Unani Tibb and modern medical science. Due to the fact that observations by the ancients were confined to the studies of animals and that there were no microscopes available for the histological examination of structure, much of the data available in the Unani requires careful revision and reinforcement.

In regard to the use of reason as recommended for the study of disease, it may be pointed out that man has always endeavoured to gain knowledge by experience as well as by the use of reason. Experience gives knowledge only of observable facts while reason is necessary for the formulation of theories and hypotheses which help to generalise factual knowledge and to elucidate phenomenon which defy direct observation. Science depends chiefly on the methods of experience and thus gives us more and more of the variable facts. Reason is mainly employed by philosophy which gives us helpful theories. While both disciplines are necessary for the maturation of any branch of knowledge science tends to distrust philosophy as it hinders the progress of observation. Philosophy has no time for experiment and little respect for facts which fail to conform to its conceptions. Though science and philosophy pursued for their own sake need not depend upon one another's help but in Medicine which has daily to deal with many obscure problems the two cannot for ever be kept apart. The prolonged emphasis of modern medicine on observation and experiment has already brought us face to face with the problem that specialism is inevitable but as Sir Robert Hutchison (9) has pointed out, "though favourable to the accumulation of facts, it is bad for philosophy of knowledge. There is little speculation and too little use of imagination, and most scientific literature is barren in ideas." Trotter (10) also warned us long ago "that a branch of knowledge strictly limited to experiment and without any kind of speculative admixture tends in time to lose its inspiration and drifts into a dry and rigid orthodoxy. Some such decline was perceptible in the physical sciences towards the end of the nineteenth century and there can be little doubt that a strict reliance on experiment alone would in the long run have a similar deadening effect on scientific medicine. In the second place medicine is as we shall point out more fully later, a composite subject. One of its elements is an experimental science, but a large part of it obeys the very different discipline of a practical art. In consequence it has often to deal with and act upon incompletely definable situations and to develop the faculty of practical judgment on imperfect evidence and

activity characteristically absent from an experimental science. As long, therefore, as medicine continues to be so largely an activity of non-scientific kind, every faculty of the active, rational mind is to be desired in the practice of it."

If the teaching of medicine therefore is to be simplified and if more particularly in our own country its practice is to conform with the cultural development of our own space-time we should follow the advice of Avicenna and thus seek the help of reason in developing its theory and practice. The 'a priori' teaching of carefully formulated generalisations of this kind could help to lighten the burden of pure science and give the medical student more time for subjects which have a more direct bearing in his future practice.

True in the past the use of reason had generally hindered rather than promoted the advance of medicine and that Avicenna's own system could also be blamed for degenerating in to an apparently rigid orthodoxy of mysterious dogmas and a collection of verified and unverified facts, but it must be remembered that it was not so much the use of reason as the use of wrong reasoning. If we can be sure that our theories and hypotheses do not run contrary to facts and are kept suitably altered by experiment we need no longer be afraid of using the faculty of reason. If Avicenna's system became stagnant it was because his followers failed to realise that his work

"gives only the minimum of what an ordinary general practitioner is expected to know" (Kuhyat i Qanoon Preface),

and as such was not to be taken as the gospel for the research scholars and expert hakims of all times. For those interested in the further growth and development of medicine rather than its mere practice Unani Tibb rightly gives primacy to experiment as follows

- (i) "Experiment is more reliable while speculation is subject to errors"
- (ii) "Experimental method can be learnt by anyone while speculation can only be practised by eminent physicians"
- (iii) "Experiments with drugs give knowledge both of physical qualities and specific properties while speculation bestows knowledge only of the physical qualities" (Commentary by Ayub Israeli in the Akṣarai Translation of Moojiz i Qanoon)

Indeed from the following it will be observed that in medical research it fails to be satisfied with only experiments on the animals but would have us perform more of the clinical research —

- (i) " Experiment should be carried out on the human body
- (ii) Medicine should be free from any extrinsic or intrinsic alteration
- (iii) The trial should be allopathic (and made not in complicated but in) simple conditions
- (iv) Medicine should be qualitatively and quantitatively approximate to the intensity of disease
- (v) Only the constant observations of repeated experiment should be recorded (Page 597 Ibnul Nafis Qarshi in the Aksarai translation)

As the formulation of theories and hypotheses which are sufficiently general to cover the growing volume of scientific facts is a task to be left for some genius gifted with an unlimited vision of the future it may be profitable for us to investigate the validity of Unani theories in order that we may be able to employ them provisionally for further research and experiment

An examination of Unani theories and hypotheses in the light of scientific knowledge is clearly beyond the range of a physician and is really a matter for the physicists chemists biologists and philosophers. If, however we the physicians in our groping for a larger number of cheaper and more willing doctors for the rural areas have to benefit from the philosophy of ancient times we must make an effort to prepare the necessary ground

Imbued with the spirit of enquiry and fully conscious of my own limitations I shall therefore ignore the warning by Avicenna and will proceed to interpret at least some of his hypothesis as follows

4 Elements—The Units of Constitution as a whole

From the foregoing account of the Unani curriculum it will have been observed that it comprises all the factors which enter into the constitution of man and is organised in the form of a unified theory and practice of Medicine. If we have also to develop such a system of medicine then neither the material elements of chemistry nor the descriptive knowledge of various energies, no doubt invaluable for the study of health

and disease could by themselves provide a satisfactory basis for our studies. Hence the conceptual Elements of the Unani Tibb which generalise both matter and energy deserve to be specially considered by us, (Arjozah 7—10).

According to Avicennā :

"Of the physical (hypotheses) the very first is that of the Elements which are the basis for the (constitution of) various bodies. Hippocrates was right in reasoning that they are Fire, Air, Water and Earth as it is these which (obviously) get dispersed after death. Had there been only one Element the living body should never get disintegrated from any adverse influence." (Arjozah 7—10).

In the Kuliyaṭ he defines these Elements as follows :

"Elements are simple substances which provide the primary components for the human body. They cannot be subdivided into newer components. It is from their combination that in nature all order of things are formed.

"It is necessary for the physician to accept from Natural Philosophy that the Elements are neither less nor more than four in number and of these—Fire and Air are light, and Water and Earth heavy." (Kuliyaṭ-i-Qanoon, Part I, paras 20-21).

By calling them 'substance' Avicenna gives the impression that the literal fire, air, water and earth are the basic constituents of all organisation. This is, however, not true for he states

"By air we do not mean the Air as an Element but the atmospheric air which surrounds us. This air is not the Elemental Air—even if that be supposed to have any existence." (Kuliyaṭ-i-Qanoon, Part 2, para. 222).

This confusion is due to the fact that the word 'substance' is often employed in two different senses. In its more common usage it no doubt means an object or a thing like a man, horse, fire, air, etc. In the primary sense it is, however, a mere abstraction employed to convey the idea of individuality such as enables different organisations to retain their 'essence' while undergoing a series of quantitative and qualitative determinations e.g., in one being successively young and old, and in water from first being liquid getting converted into vapour or steam.

It is in this sense that the Elements which are changeable but yet retain their own individuality in space time, have been regarded as being substances

"None of the Elements are capable of undergoing a dis integrative change They merely change in their form or quality, e g , (in) the conversion of Water into Air, (as in steam)' (Kuliyat : Qanoon, Part 2, para 222)

The real fact is that the Elements are mere abstractions which generalise the various qualities by which all objects and phenomena are recognised in this world In this connection we have to remember that perception is made through the five senses of touch, taste, smell hearing and vision The Unani system regards all these as being *differentia* of the touch and as such what could be generalised in the terms of heat, cold, dryness and moisture which are fundamental qualities of touch 'the mother of all sensations' Thus

"According to the philosophers, heat, cold, dryness and moisture can be perceived by touch as present either in simple form or as compound temperaments (or the patterns of qualities)" (Arjozah 11 12)

From the following description of these qualities by Aristotle it will be observed that the active and cold generalise the two opposite movements of energy while the dryness and moisture which are passive the two opposite dispositions of the mass

"Two of the qualities the hot and the cold are active, two, the dry and the moist, passive We can satisfy ourselves of this by looking at instances In every case heat and cold determine, conjoin, and change things of the same kind and things of different kinds, *moistening, drying, hardening, and softening* them Things dry and moist, on the other hand, both in isolation and when present together in the same body are the subject of that determination and of the other affections enumerated above The account we give of the qualities when we define their characters shows this too Hot and cold we describe active, for 'congregating is essentially a species of 'being active' moist and dry are passive for it is in virtue of its being acted upon in a certain way that a thing is said to be 'easy to determine' or 'difficult to determine' (Meteorologica, Vol V Translated by Webster)

3. While science goes on to differentiate the mass into chemical elements and the energy into photons and measurable wave lengths, the Unani system distinguishes heat and cold in the energy and dryness and moisture in mass as follows :

"Of the four qualities heat produces warmth, disperses resolves, melts, destroys and evaporates. Cold makes the things cool, aggregates, freezes and extinguishes the heat ; Moisture makes the objects soft, humid, greasy, thin and fluid ; dryness makes objects dense, hard, stable and resistant." (Aksarai Translation of Moojiz-i-Qanoon by Ayub Israeli).

From the above we can therefore see that heat and cold are but two opposite directions of the energy in space while dryness and moisture two contrary reactions of the mass in time. As Einstein has demonstrated in the world of phenomenon there is neither pure energy nor pure mass but everything as being made of mass and energy at the same time and as also science recognises no mass or energy could have its qualities to the absolute degree, the generalisation of the Unani system that all objects including what we may term as the atoms, molecules, elements, compounds, genes or chromosomes, have their own relative proportion of all the four qualities. That this view is reasonable could be seen in the example of heat which even if of thousands of degrees is only relative to the temperature of water at its freezing point. The degree to which it could be further increased until the arbitrary limit of absolute is reached would be the degree of cold in its composition. Similar is the case in regard to dryness and moisture. Thus the simultaneous presence of qualities of both mass and energy and thus of space and time, inseparable as they are, into pure space or pure time cannot be satisfactorily accounted by either the purely spatial elements of chemistry or by the precisely measurable movements of time. In order to describe and explain a constitution of this kind the Unani system adopts fire, air, water and earth as its symbolic elements which possess energy to the absolute maximum and minimum of the elementary qualities of both space and time. Thus according to Avicenna :

'In things that grow as also in the elements these qualities exist in space-time. In the organisation of Elements there is either absolute excess or deficiency of these qualities. Therefore heat is present in Fire and Air, cold in Earth and Water, dryness in Fire and Earth and moisture in Water and Air. Thus the

Elements come to differ as also resemble one another. Each Element in this way has a resemblance and relationship through one of its qualities with Element next below or higher to it and by its other qualities is of an opposite and different character. It is on account of their mutual similarities and differences that they tend to act and react upon each other. By differing from each other they are able to retain their identity and by resembling one another they tend to combine with each other. Apart from the Elements every compound (object) has its own particular dominance of qualities. This is recognised by measuring (its qualities) against a standard which contains four qualities in a definite proportion. Hence a compound (object) may have its own individual excess or deficiency of these qualities. Neither of them are entirely absent from its constitution nor are they present in (absolutely) equal proportions. It is by the dominance of these qualities that the objects are known as being firey, earthy, watery and airy—names which are mere abstractions" (Arjozah 13—26)

In regard to the use of symbols Edington (11) has already pointed out "That environment of space and time and matter, of light and colour and concrete things which seems so vividly real to us, if probed deeply by every device of physical science and at the bottom we reach symbols." "Indeed", says Plancke (12) 'if we want to grasp reality the world beyond the world of sciences, it can only be perceived indirectly through the medium of the world of senses and by means of certain symbols which our senses allow us to apprehend," and he goes on to emphasise, "that the study of Physics which a generation ago was one of the oldest and most mature of natural sciences, has today entered upon a period of storm and stress which promises to be the most interesting of all. There can be little doubt that in passing through this period we shall be led not only to the discovery of new natural phenomena but also to new insight into the secrets of the theory of knowledge. It may be that in the latter many surprises await us, and that certain views, eclipsed at the moment, may revive and acquire a new significance. For this reason careful study of the view and ideas of our great philosophers might prove extremely valuable in this direction."

In order to prepare us for a study of the human constitution the Unani system gives us a description of its Elements as follows —

“EARTH is a simple substance which should be regarded as being normally situated in the centre of the other Elements. On account of its absolute heaviness it has a natural tendency to remain stationary unless it is away from its centre (of gravity) when it (tends to) return to its (original) position. In temperament it is so cold and dry that in the absence of external factors, its natural quality is readily perceived by the body. In Nature it serves the purpose of making the compounds (objects) firm, stable and lasting.

“WATER is a simple substance which in its natural state surrounds the Earth and in its turn is surrounded by the Air, provided (of course that) these Elements are also present in their natural state or position. It is this (relationship) which accounts for its relatively heavier weight (or gravity). Water is cold and moist, i.e., in its pure and natural state it displays an obvious coldness and the quality of moisture. Moisture is the quality which makes it capable of ready dispersion and aggregation and which enable it to accept varied shapes of an unstable kind.

“Water is thus necessary for the proper moulding and spreading of natural objects as quite unlike the Earth it easily parts with its own shape and accepts with equal readiness an altogether newer shape. When however, a moist substance is mixed with a dry one, the dry substance acquires the property of being moulded into newer shapes. Due however to the component of dryness it tends also to retain its original consistency and shape.

“AIR is a simple substance whose natural position is above the other Elements being higher than even the atmosphere of the Earth. This is known as its absolute lightness.

“FIRE is hot and dry in nature. It is necessary for the proper maturation of constituents and for making them light. Combined with the other Elements it facilitates the diffusion of Air. It attenuates the cold and heaviness of the Earth and Water by imparting them with its own elemental qualities which are opposed to those of their own (particular) temperament.

“The two heavy Elements are essential for the formation of organs while the two light Elements are required for the production and movement of Vital Energies. Fire and Air assist the movement of organs. Movement, however, is originally determined by the ‘Nafs’ (Anima, self or individuality)”. (Kuliyat-i-Qanoon, Part I, paras 22—28).

From the foregoing description we may for the purpose of convenience tabulate the symbolism of Elements as follows:—

Symbolism of the elements

Qualities of change and structure	Fire	Air	Water	Earth
I PRIMARY				
(A) <i>Direction of Energy in Space</i>				
(1) Outwardly (radiation) = Hot	++	+		
(a) Heating				
(b) Dispersive (vacuum)				
(c) Expansive				
(d) Penetrative				
(e) Diffusive				
(2) Inwardly (attraction) = Cold			++	+
(a) Cooling				
(b) Contracting (Pressure)				
(c) Aggregating				
(B) <i>Disposition of mass in time</i>				
(1) Resistance = Dry	+			++
(a) Dry				
(b) Hard				
(c) Rough				
(2) Pliability = Moist		++	+	
(a) Moist				
(b) Soft				
(c) Smooth				
II SECONDARY				
(A) <i>Corpuscular Mass</i>				
(1) Weight per unit size of volume)				
(a) Light	++	+		++
(b) Heavy			+	
(2) Density (Number) per unit of volume)				
(a) Thin	++	+		++
(b) Thick			+	
(3) Shape or State				
(a) Movement or Energy	+	+		
(b) Gaseous		+		
(c) Liquid			+	
(d) Solid				+
(4) Position	Outer most	Outer	Inner	Inner most
(B) <i>Harvicular Energy</i>				
(1) Radiational (Heat light Vapour pressure negative electricity)	++	+		
(2) Attractive (Gravitational cold - Mechanical Positive Electricity)			+	++

After having learnt about the significance of the Elements it is necessary for us to inquire into the laws which govern their organisation into various types of objects and phenomenon. As unfortunately Avicenna's more detailed works like the *Al-Shifa* and *Asrar-i-Alvi* which deal more specifically with this subject have not been available for study, we shall have to be content with whatever little might emerge from an examination of his brief statements as translated by me from the *Kuliyat-i-Qanoon* and *Arjoza* and from the *De Vribus Cordis* as translated in the *Canon of Medicine* by Gruner. This examination will be conducted in the back ground of some of the earlier conceptions and in the light of our more modern knowledge about the constitution of matter.

If we begin by visualising the Unani Elements in the order they exist in nature, i.e., with Earth in the centre and Water, Air and Fire surrounding the Earth in that order we shall have to accept that the organisation of homogenous objects, could either be a spatial re-arrangement between the particles of these Elements or a transformation of the four Elements into one common substance.

Empedocles who is generally credited with the original authorship of these Elements regarded them as being rigid and unalterable and thus subject to organisation and differentiation by spatial re-arrangements. It was on his view regarding the constitution of 'matter' that classical physics of the 19th century developed its theory of mechanism and began to explain all natural phenomenon with the help of chemical elements. But though this conception suited as it was to experimental verification, helped science to discover many valuable facts in the wealth of its own contributions it is now unable to stand the critical examination such as the following by Bergson : (13)

"A mechanistic theory is one which means to show us the gradual building up of the machine under the influence of external circumstances intervening either directly by action on the tissues or indirectly by the selection of better adapted ones. But, whatever from this theory may take, supposing it is able at all to explain the detail of the parts, it throws no light on their correlation".

In opposition to the Empedoclian conception Plato (400 B.C.) had propounded the view that 'matter' had no real existence and that it is the 'idea' in the human mind which alone has the right to be called real. According to him it is the projection of 'ideas' in the terms of space which makes matter appear to us what it

is This idealism of Plato however conveniently ignored that if matter had no real existence how could the machinations of the mind which subsists on a material body could be accepted as being real

As a compromise between the materialism of Empedocles and the idealism of Plato Aristotle came to regard individual matter as being determined from prime matter by the end or entelechy This dualism which assumes a different nature for matter and energy and for body and mind fails to establish the unity of life and is unable to explain except by postulating the absurdity of a psychophysical parallelism between a separate body and a separate mind It is therefore interesting that in this epistemological dispute Avicenna adopts an altogether different view For according to him ultimate reality is of the nature of a common Energy

The first principles behind all generable and corruptible substances are active and kinetic energies which occur simply in Fire Air Water and Earth or in compound temperaments (Canon of Medicine D V C 1122—26)

From the following description of the Temperament it is clear that with the help of Elements he gives us a conception which by encompassing the particulable mass as also the activity of energy generalises all the various aspects of the organism as a whole

Temperament is the quality which results from the mutual interaction of the opposing qualities of elements which by dividing up into minute particles (mutually) secure (an intimate) contact between the majority of their particles The mutual interaction of the (primal) qualities of these particles leads to the emergence of a new quality which is uniformly distributed amongst the particles of the composing elements

As the primary qualities of the Elements are Heat Cold Dryness and Moisture the organisation as a whole of either a newly formed or of a disintegrating body is a resultant of these qualities (Kuliyat i Qanoon Part I paras 29 30)

It will be observed from the following statement that the differentiation of organs as also of the vital energies is in accordance with the selfsame laws of quality and quantity at the same time

"The beginning of the breath is a divine emanation from potentiality to actuality proceeding without intermission or stint until the form (lit. preparation, state) is completed and perfected. Each member, though derived from the self-same substance of the humours, nevertheless has its own particular temperament—for the proportional quantities of the (denser portions of the) humours and the form of their comixture are peculiar to each member. Similarly, although derived from the same attenuated portions of the humours, nevertheless each of the three breaths (natural, animal and vital) has its own particular temperament, for the proportional quantities of the more attenuated portions of the humours, and the manner of their comixture are peculiar to each breath." (Canon of Medicine. Para 170, D.V.C.)

Hence Avicenna does not consider the need of importing separate principles to account for the organisation of his physical, vital and intellectual properties of man but regards these functions as being merely specific differentia of the selfsame Energy. Thus according to him :

"Strictly speaking, the specific 'property' of a thing is the same as its 'nature.' Nevertheless, there is a difference between the two conceptions, in the same way as the particular differs from the universal. It is not true as the laity thinks that the two terms belong to opposite things. The truth is that the first principles behind all generable and corruptible substances are primary active or kinetic energies and occur either simply in fire, air, water and earth, or linked to a composite temperament.

When we find that actions are not to be attributed to any of the aforesaid and that the real reason for an act is not apparent, they come to the conclusion that every one of the first beginnings is inscrutable. That is not true. Actions proceed either from natural (physical) or vital or intellectual or accidental (contingent) properties." (Gruner's Translation of the Cannon of Medicine pp 1122—1126).

From the foregoing statements by Avicenna it is clear that Elements of Unani system are sufficiently general to cover most of the facts discovered by modern science. It must, however, be recognised that being dependent upon the tactual impressions

of man who is himself changeable, these Elements though useful in their own way for necessary inspiration and clinical research are of little value for making further progress and discovery. That this was admitted by even Avicenna is clear from the following

"This ignorance is in two directions (1) we do not know the initial factors which go to produce this attractive power. Neither do we know them in regard to any other force, (2) We do not know why this body is more disposed to take on magnetic power than any other body. But neither do we know more in regard to other phenomena. We are in exactly the same case concerning colours, fragrance, power of the mind, and such like matters. Of course we can say that all such phenomena arise out of the active principles originally blessed by God and we can allow that the basis of the disposition which comes from the particular constitution is due to a rearrangement of Matter. But though we may guess that it is the proportion of ingredients which account for the existence of a temperament, it is quite another thing to be definite about the absolute proportions of this comixture and we shall be ignorant of this as long as we live in this world. So it is evident that our ignorance of the real causes of the power in the magnet is not as remarkable as our ignorance of the real causes which dispose the corporal or mental body to redness or yellowness." (Gruner's Translation of the Canon of Medicine, para 1128)

We can however see from the table that inspite of their many limitations the Elements are not only capable of fulfilling the Aristotilan causes and conditions but also the various categories that may be affirmed of any object. Thus the substance of an object may be described as being that of the Element dominant in its composition. Quantity as the relative magnitude figure or number of the combining Elements, Relation extrinsic as between one object and the other and intrinsic as between its various components by the commonness of their origin from the Elements. Space intrinsic as the spatial rearrangement of the particles of the composing Elements into the position of some particular Element e.g., the organisation of an otherwise airy carbon in the position of the Earth and

extrinsic as the position of an organised object as being in the orbit of a particular Element as Water in the form of steam; Quality as the temperament which may be dominantly of one or other Element; Condition or State being that of an Element; Activity physical as the radiation of Fire, diffusion of Air and the gravitation of Earth and vital as the dynamic organisation of all the four; Passivity (reactivity) as the pliability of Water and resistance of the Earth; Movement as the activity of the Elements; and Time as the bearer of change in the mutual relations of the Elements. It is, however, evident from the description of material causes that Avicenna regards the various qualities neither like Aristotle as being discrete and independent nor unreal as was held by Plato, but such as exist in the objects innately from the presence of the elements and organised in an interconnected and interdependent manner so that the object comes to acquire a wholistic unity between substance and change both within as well as without in space-time. Thus according to this view a cold object is to be regarded as being not only of a lower temperature but also one which feels heavy and inert to the human body. Similarly a hot object is not only relatively warmer but also lighter and more active.

After having defined in some detail the Unani theory of constitution I may now be permitted to indicate its ability to describe and explain the various physico-chemical facts observed by modern science.

(1) Physical States of Matter.

The radiant energies of heat, light, and negative electricity are fire as they are hot and dry. Hot because they warm and expand things, dry because they have drying, roughening and hardening effects. Gaseous state is the Air because it is hot and moist in nature. Hot as it diffuses and disperses and moist because it makes the objects equally compressible and expandable in space. Liquid is the Water; it is cold and moist. It is cold because its corpuscles are practically immobile from the presence of a cohesive force and it is moist because they are able to change their shape. It is not so moist as Air as its corpuscles do not change in volume. Solid is the Earth as it is cold and dry. It is cold because its particles are immobile and dry because it is not easily dispersible.

(2) Chemical Change

In Chemistry the cause or causes of chemical transformation are yet not fully known. In terms of the Elements we can merely speculate that the acting and reacting components in a

chemical reaction are really unstable compounds 'of the four elements with a dominance of the active energy as of Fire in the one, while of the receptive mass in the other reactant. When they come into contact with their counterparts as the earthy phosphorus with its relative excess of Fire, with chlorine with a relative excess of moisture they so act and react upon each other that a comparatively stabler compound like the Phos. chloride is formed thereby causing a disappearance of the excess of Fire in the form of heat and leaving the stabler earth behind.

If we leave the obscure part which catalyst play in chemical reactions, factors like the molecular, concentration, temperature, pressure and the nature of medium on the velocity of chemical change may be accounted as follows:

- (a) Greater the concentration of the active hydrochloric acid on the same weights of a reactive metal greater would be the velocity because greater is the Fire available in the process.
- (b) Greater the temperature more suitable the conditions for heat or activity (chemical).
- (c) A rise of temperature assists the formation of products which absorb heat but hinders the production of those which eliminate heat because in the former the process is dominantly of dispersion while in the latter more of aggregation.
- (d) Greater the pressure greater the velocity of change because greater would be the contact between the active and the reactive elements.

(3) Physical laws of Chemistry.

The laws of conservation of matter and energy are accounted by the Unani by generalising that Elements as the ultimate units of matter and energy are incapable of disintegrative alterations and that from one compound to the other the change is merely a less or more of their quantity and quality

The law of Constant Proportion which states that 'a chemical compound has always the same composition, i.e., it always contains the same elements in the same proportion by weight' can be explained by the Unani on the basis of quantitative proportion of the Elements. In isomerism where this law is by no means true, the Unani theory accounts it on the basis of changes in the form or position of the Elements which is the same thing

as the recognition of varying patterns of architecture amongst the combining elements by modern chemistry.

Law of Charles states that 'at even pressure gases expand $1/273$ part of their volume at 0°C to 10°C in temperature.' This can be accounted by the Unani by generalising that heat causes expansion.

Boyl's law which states, 'temperature being constant, the volume of the gases varies inversely as the pressure to which it is subjected. This is accounted by the action of pressure being similar to that of cold whose direction of force is opposite to that of heat.'

Dalton's Law which recognises that 'the partial pressure of two gases in a mixture, is a summation of the partial pressure of both' is accounted by generalising that different gases have their own proportion of heat or outwardly force which gets summated in their mixture.

Law of Osmotic Pressure which states that 'at constant temperature the osmotic pressure increases with the concentration of the substance in solution can be accounted by generalising that greater the concentration greater the mass and hence greater the degree of attraction.'

Law of Diffusion according to which 'the velocity of diffusion of any two gases is inversely proportional to the squareroot of their densities is accounted by generalising that denser the object greater its Earth and hence its stability and resistance, lesser would be its dispersion.'

Law of Dulong and Petit which states 'the specific heat or the heat required to raise the temperature of one gram of substance to 1° as expressed in calories, is lower in metals with higher atomic weights', can be accounted generalising that heavier the thing closer the contact of the reactive elements and hence greater their conductivity.

The method of determining the molecular weight of various substances from the rising of boiling point and the lowering of freezing points of their solutions, is accounted by the Unani generalisation that greater the Earth in a solution greater the resistance to change from liquid to gaseous or to solid state and hence greater is the weight.

The melting point of ice is lowered by increasing pressure as the increased density would increase its Earth and thus its resistance.

The Air being hot thus active is a generalisation which provides the basis for the kinetic theory which assumes that the molecules of gases are in a continual state of motion

(4) Thermo Chemistry

When two substances combine to form an altogether new compound the quantitative proportion of the elements in either substance reorganise themselves into proportions which are characteristic of the new compound. In the various combinations there may either be an absorption or release of Fire or both Fire and Air. While in chemical combination the part played by Air could be recognised in the production or absorption of gases that of Fire is recognisable as the evolution or absorption of heat. In this way Exo thermic compounds are those which are cooler than the reactants and the endo thermic those which are hotter. Thus an Exo thermic compound like the CO_2 could be regarded as being cooler than $\text{C} + \text{O}_2$ mixture. As the absolute energy of compounds and elements is immeasurable it is of course difficult even to conjecture as to how much of the 943° calories which are released in the above reaction originally belonged to one or the other of the combining Elements but we can see that the new gas CO_2 is less active and thus cooler than at least the Oxygen. In endothermic reactions like NO_2 the formation of N_2O with the absorption of 27000 calories would appear to make N_2O more active or hot than at least Nitrogen.

(5) Electro Chemistry

The term electrolysis is applied to the process by which a compound is either decomposed when in solution or fused by the passage of an electric current. Metals being dominantly Earthy radicles tend to remain at the negative pole non metallic atoms and acid radicles being more active and thus having Fire go on to the positive pole. If we accept the Unani generalisation that all centrifugal or dispersing forces like heat light and sound are hot while the aggregating or centripetal forces like the gravitation magnetic attraction are cold we may regard electricity as being hot and cold at the same time heat being present at the negative and cold at the positive pole.

From the foregoing it will be observed that the theory of Elements is a generalisation of the Science of Physical Chemistry with this difference that while science deals with the subject of corruption and generation on a more precise basis the Unani conception has to be content with the mere dominance. Though in this way the four Elements could be seen also in the constitu-

tion of atom as the active electrons and the reactive protons and in dynamic activity of the cell as Water in the form of colloidal suspension of proteins, Earth the various salts, Air the gaseous exchanges and Fire in the form of manifold activities, all as in a 'dance', which is continually expressing the dry sol and moist gel phases of the cellular life. This conception, it must be emphasised is by no means inclusive of every phenomenon. For even in the relatively simpler physico-chemical field we can recognise many exceptions, such as the dual behaviour of hydrogen and the 'earthy ice being lighter' than water.

In concluding this section we should not, however, lose sight of the fact that despite its limitations this conception could be utilised in describing and explaining the genus, species, difference, property and extent of all order of things in terms which could be understood by all and thus such as could be employed for dispersing the mysteries of science and in disseminating its knowledge more widely amongst the masses. Thus in the mineral kingdom where inorganic matter is generally solid, heavy in weight, thick, aggregated, dispersing with difficulty, non-volatile, non-porous, cold and inactive, we could recognise a dominance of the Earth and differentiate the minerals into the metals and the nonmetals by accepting the presence of a greater proportion of Water in the malleable and better conducting metals and a greater proportion of the Air in the fragile and poor conducting nonmetals. The presence of fluidity in metallic mercury could be accounted by regarding the organisation of the Earthy mercury as being in the position of Water.

In regard to evolution it may be stated that minerals having been generally organised within the earth are to be regarded as occupying the lowest position. Vegetables which have progressed from the relatively static organisation of the minerals and have come to possess dynamic processes of nutrition, growth and reproduction contain more Water and Air and thus have a position and a composition superior than that of the mineral. Animals possess not only a greater proportion of the Water and Air but being able also to move about in fulfilment of their inner needs have a relatively greater proportion of the Fire. Hence they are to be regarded as being next higher to the vegetables. Man who not only possesses unconscious ability for fulfilling his inner needs but also has willing and conscious purposes for overcoming the vagaries of his space-time environment is to be regarded as being highest in the evolutionary scale. Due to the greater harmony

of his constitution within and because of his more adaptable relationship with his outer environment, he is also to be recognised as being the most near of all beings to the Absolute, all pervading and all comprehensive reality

From amongst all beings man approaches nearest to the absolutely equilibrated balance (Kuliyat i Qanoon Pat I para 44)

5 Vital Force (Rooh)

Vital Force provides the Unani medicine with a basis for the differentiation of the various faculties (qawa) or biological systems and their functions (af'al). Although in the generalisation of the Vital Force and Faculties Tibb lacks that wealth of detail which characterises our own system it has the great merit of presenting us with the picture of man not as a set of disjointed and independent organs and functions but rather as a psychosomatic unity of not only interrelated structure and function but also of interrelated and interdependent organ systems

Systems and their function are mutually related. Each organ system gives rise to a particular function and each function is the result of an organised system (Kuliyat i Qanoon Part 1 para 209)

There are three systems as also three sets of functions arising from them. They are the

- (1) Physical (2) Nervous (3) Vital

Physical System has two varieties. One is concerned with preservation of the individual and as such responsible for the functions of nutrition and growth. This is located in the Liver. The other for preserving the race is responsible for the sexual functions the formation of the germinal fluid and the fertilization and further development of the ovum. This is located in the testicles and ovaries (Kuliyat i Qanoon Part 1 para 211)

Nervous System consists of the faculty of cognition and the faculty of (conation or) movement. The cognitive faculty functions externally [as sensation and internally (as inner) perception]. Brain is the centre of the nervous system as it performs its various functions (Kuliyat i Qanoon Part 1, para 268)

' *Vital System* This system conditions and suitably prepares the vital Force for the sensory and motor function of the Brain. It also carries vital force right into the organs and tissues for their very life and vigour. This system is centred in the Heart and functions through it.

Although the Vital Force first gets organised and differentiated into the Vital System according to the Physicians it is (however) not (just) the appearance of this system which leads to the differentiation of the other systems. They are not differentiated until the Vital Forces acquire the (necessary) disposition for their own special organisation," Kuliya-i-Qanoon, Part 1, para 259)

Vital Force in the language of Avicenna is a quasimaterial substance. Due to the confusion of this term with 'soul' the synthesis of area in the laboratories led to its disappearance from all scientific literature. Later, however, it was taken up by Heinmann for service to Homeopathy and more recently to fulfil the need for a vital conception it appears to have been revived under the name of 'entelechy' by Driesch and 'elan Vital' by Bergson. In the light of subsequent developments in organic chemistry we could, however, see that according to Avicenna Vital Force had been of quite a different significance for he says

"The Vital Force in our language is not the 'soul' of the philosophers" (Kuliya-i-Qanoon, Part 2, para 101)

It is not the 'breath' as Galen had thought or what Gruner had translated. Avicenna defines it as

"That which emerges from a mixture of the first principles and approaches towards the likeness of celestial being. It is a luminous substance. It is a ray of light (Canon of Medicine—D V O 1091)

and he goes on to say that Vital Force is of a material nature

"This brief description may be further amplified by saying that the way in which the dense structures i.e., the organs and their parts are formed in accordance with their individual characteristics from the heavier portions of the humours a light (aetherial) structure the vital force is created from the lighter and vapoury portions of the humours, and just as

Liver is concerned with the production of the former
Heart is the centre of production for the latter'
(Kulhyat i Qanoon, Part 1, para 251)

It is carried in the blood vessels

"Pulse is the contraction and dilatation of the vessels which carry the Vital Force. The object of this movement is to sustain the Vital Force through the supply of pure air (oxygen)" Kulhyat i Qanoon Part 2, para 1106)

It is conditioned by respiration

"Air not only enters into the composition of the body and the Vital Force but by constantly reaching the Forces it keeps them actively conditioned through a judicious elimination of the hot vapour during expiration. This hot vapour ($\text{CO}_2 + \text{H}_2\text{O}$) is to the Vital Force what the (other) waste products are to the body (Kulhyat i Qanoon, Part 2, para 100)

That it is a basal condition for all functional activity would be evident from the following —

'When this force is produced in a normal manner it tends to acquire a faculty which enables all the organs to perform the functions of their own faculties e.g., in the nervous system (sensation and movement)" Kulhyat i Qanoon, Part 1, para 252)

Being composed of the lighter and vapoury portions being carried in the vessels, being activity conditioned by the mechanism of respiration, and being the potentiality or precursor for the life and activity of all the organs and organ systems, this quantitatively determinable 'luminous' substance is identifiable on its material side with the glucose as the immediately combustible moiety of the nutrient, together with its various auxiliaries in the physicochemical system like the hormones, vitamins and enzymes

As a ray of light the Vital Force manifests as the 'innate heat' the heat which is, the instrument of all 'the faculties' and which moves with the Vital Force so that

'When Vital Force moves inwards the inner side of the body gets hot and the outer side cold and vice versa' (Kulhyat i Qanoon, Part 3, para 28)

Hence Vital Force is identifiable with the basal metabolic energy which lies behind the life and activity of all organs and tissue and with which the cells of all animals by using oxygen pure air and eliminating CO_2 and water (the hot vapoury waste products) maintain the body temperature, heart beats and respiratory movements.

Growth and Differentiation of the Vital Energy.

The beginning of the breath is as a divine emanation from potentiality to actuality proceeding without intermission or stint until the form (lit. preparation, state) is completed and perfected. Each member, though derived from the self-same substance of the humours, nevertheless has its own particular temperament for the proportional quantities of the (denser portions of the) humours and the form of their comixture are peculiar to each member. Similarly, although derived from the same attenuated portions of the humours, nevertheless each of the three breaths (organic, nervous and vital) has its own particular temperament, for the proportional quantities of the more attenuated portions of the humours, and the manner of their comixture are peculiar to each breath.

Though the body consists of several members there is one from which they all originally arose. As to what this member actually was, there are various opinions. The fact remains that one member necessarily came to light before other members could arise out of it. Exactly the same is true in the case of the breaths. There is one single breath which accounts for the origin of others, and this breath according to most important philosophers, arises in the Heart, passes thence into the principal centres of the body, lingering in them long enough to enable them to impart to it their respective temperamental properties. Linger- ing in the cerebrum it receives a temperament whereby it is capable of receiving the faculties of sensation and movement (sensitive faculties); in the liver, it receives the faculty of nutrition and growth (vegetative faculties); in the generative glands it acquires the faculty of generation (reproduction)" (Canon of Medicine, D. V. C. 170-171).

The same problem viewed in a modern way by Eric Holmes (14) sounds almost similar—"In this chapter, and in those which follow, we shall consider, so far as we are able, the metabolic changes which take place in individual tissues. We find that difference in function corresponds to differences in form. We might reasonably expect that difference in function would also entail difference in metabolism. The chemical reactions which yield the energy which enables a muscle to contract are not necessarily the same as those which enable a gland to secrete or a nerve to conduct. On the other hand, all the elementary properties of life—contractility, conductivity, the power to respond to stimuli, to elaborate enzymes and to reproduce are, in the case of unicellular organisms, inherent in a single cell. It would be conceivable that the development of the specialised tissues from primitive cells implies no fundamental difference between one tissue and another in respect of the chemical reactions which yield energy, but rather differences in the apparatus by means of which the energy when liberated, is made to do useful work. The difference between a steam driven pump and a steam driven locomotive lies not in the nature of the fuel burned to yield the energy, but in the nature of the mechanism employed to turn the energy to account. When we come to examine these matters, we shall see that the actual state of affairs represents a sort of compromise between these two extremes. Certain chemical reactions seem common to most living cells. One of them is oxidation—at any rate, if we include in the category oxidations which do not immediately involve molecular oxygen. Again all the cells of the animal body can use carbohydrate as a source of energy. All of them require for their normal function certain inorganic substances. On the other hand, nearly every tissue certain shows peculiarities of metabolic behaviour which mark it off from its neighbours. In the first place, the rate at which the different tissues of the same animal metabolism is by no means constant, and the difference between the maximum and minimum metabolic rates shows wide variations from tissue, to tissue." and as Eric Holmes concludes "One cannot help feeling that perhaps there are—or were—certain fundamental chemical changes which were the basis of the life of the primitive cells, and that, in the course of evolution, these have been modified, rather as need arose than in accordance with any rigid natural laws much in the same way as alteration has occurred in the form and arrangement of the different organs."

If our interpretation that Vital Force is no other than the basal metabolic energy is correct we shall have also to accept

that the specialisation of function and differentiation of tissue in accord with

'The proportional quantities of the more attenuated portions of the humours and the manner of their commixture' (Canon of Medicine D V C 170)

In regard to the various mechanisms employed in this process Avicenna observes that on the side of quantity the substance of vital force is 'regulated by the vasomotor centre through the contraction and expansion of the pulse—

'Physicians also believe that just as the vital faculty is a necessary pre requisite for life of the organs it is also responsible for the movement of the light ethereal vital force. It carries the Force towards the bodily organs and also contracts and expands it and purifies it by supplying the light air (oxygen). Hence from the point of view of life it enables the differentiation of vital force into the various faculties and considered from the point of view of pulse (circulation) and respiration it is directly responsible for their activity' (Kuliyat i Qanoon Part 1, para 260)

In regard to the regulation of quality in the vital force there are a number of other mechanisms. On the chemical side Avicenna mentions the role of oxygen. We however, now know that it means not only the complex variations of oxygen supply but also the wide multiplicity of enzymatic and hormonal changes in the substrate. That growth and differentiation are determined by physical changes as well is clear from the following account in the Kuliyat —

"Human body originally develops from a union of the seminal fluid of the male and the germinal fluid and menstrual blood of the female. The seminal fluid of the male is generally considered as the efficient cause while the germinal fluid of the female and menstrual blood provide the material cause. Both resemble in being moist and liquid although the earthy matter and the watery content are greater in the blood and in the seminal fluid of the female and air and fire (heat) are greater in the semen of the male. The original product is moist but it also contains earthy matter and the element of heat. And as the earthy matter produces hardness and the heat maturation, the finished product of the two fluids naturally becomes thicker and harder due to the interaction of these elements

The resulting hardness however is not like that of a stone or of a glass which do not dissolve and disperse to any appreciable extent and are able to withstand prolonged wear and tear. On the contrary our body is (so moist) that exposure to factors acting from without as well as from within prove calamitous. Externally, for example, the atmospheric air causes both dissipation of moisture as well as putrefaction. Internally the innate heat (basal metabolic heat) of the body has a constant dispersing effect and the abnormal heat from (the digestion of food tends to cause putrefaction of the bodily secretions. All these co-operate in the ultimate production of dryness. The daily decrease in the intensity of the innate heat (basal metabolic activity) occurs from the increasing dryness of the bodily organs and on account of decrease in the innate moistures which are like the oil for the lamp (of metabolic) secretions to withstand the dispersing effect of heats of all types, i.e., heat which is (metabolically) produced in the system and the heat produced by physical (and mental) activity. The innate secretions do not possess any such resistance. If they persist for so long it is because their dispersion is constantly being counteracted by the supply of food. This action of food is however not ever lasting but merely for a limited period." (Kuliyat-i-Qanoon, Part 3, paras. 7—30).

It is thus apparent from the above that the ontogenetic development of the individual and his personal reactions to the various internal and external influences could all be expressed as the result of dryness (destruction) which is constantly being counteracted by the production of moisture (reconstruction) so that—

"The initial development—the subsequent growth in fact the very activity of the bodily organs is dependent upon the production of this dryness." (Kuliyat-i-Qanoon, Part 3, para. 18).

On the side of quantitative changes in the vital energy Avicenna introduces us to the factor of strength and vigour of organs but gives no detail. In regard to variations in the functional discharge of the energy he, however, gives us the following description :

The Vital Force moves under the influence of or in association with emotional changes. Its movement may be directed inwards or outwards and in either case may be slow or gradual or sudden or violent. When the Vital Force moves outwards the body becomes cold inside. Indeed the outward movement may be of such a violent that the Vital Force gets so suddenly dispersed that it produces Cold both within as well as outside the body thus causing deep coma or death. The outward movement of the Vital Force may occasionally be sudden in anger or gradual as in pleasure or delight. The inward movement may be sudden as in states of acute fear or terror gradual in sorrow.....Occasionally the Vital Force may travel in both directions. This occurs when the emotional state is composed of two conflicting emotions e.g., anxiety associated with anger or sorrow which causes two different movements. Similarly in shame at first there is contraction of Vital Forces but later with the return of reason it expands leading to a restoration of the normal colour." (Kuliyat-i-Qanoon, Part 2, paras. 294—300).

In this connection the effects of emotions as summarised below by Sachs (15) makes Avicenna's statement particularly significant.—"Indeed nearly every emotional state affects the vasomotor mechanism but each in a different manner, Worry is commonly accompanied by peripheral constriction, Joy by peripheral dilatation, Shame by an irregular distribution of vasodilatation. Such visceral reactions also have their counterparts in somatic reactions to cerebral states. For example, pleasurable emotions are reflected in the buoyant posture and movement of the body; Grief on the other hand is reflected in a drooping posture and also movements"

"In addition to the emotional states mentioned above, there are other factors which also influence the body, e.g., mental factors which may be responsible for physical changes" (Kuliyat-i-Qanoon, Part, 2, para. 301).

Like the emotions sleep also influences the movements of the Vital Force.

"Sleep also enables the Vital Force to devote its whole-hearted attention to the task of digestion and thus

saves it from the formidable task of being simultaneously engaged in the performance of two opposite activities." (Kuliyat-i-Qanoon, Part 2, para. 1016).

From the foregoing account it is sufficiently clear that the inward movement of vital energy implies an activation of the Nutritive faculty and the outward movement a stimulation of the Nervous faculty of cognition and conation. As the former functions predominantly under the influence of parasympathetic and the latter under the sympathetic system one cannot help drawing the conclusion that the two oppositely directed movements of Vital Energy imply changes in the tonus of the two vegetative pathways. In this way inward movement which stimulates the parasympathetic and thus inhibits the sympathetic is to be regarded as being while the anabolic outward movement which stimulates the sympathetic and inhibits the parasympathetic as being dispersive and katabolic. It is through an inward movement of the aggregative kind that :

"By enclosing the heat (basal metabolic activity) within the body (during) sleep stimulates the nutritive faculty". (Kuliyat-i-Qanoon, Part 2, para. 280).

On the basis of the foregoing account we may therefore regard the :

"innate heat (basal metabolic activity) instrument of all the faculties"

as a common type of discharge, as if from a metabolic centre presiding over all forms of activity. Under basal conditions where vital activities of the heart and lungs have to be carried out the centre of heat is continually engaged in the production of dryness (oxidation). During physical activity the increased production of dryness tends to increase general heat in the body producing thereby a hot and dry state. During the functioning of the nutritional faculty the initial process as well as the subsequent moments in the digestive tract do require the help of dryness but the final appearance of moisture in the form of digestive and other secretions and the ultimate assimilation of food material (reduction) so overwhelm the situation that the excess of moisture over the heat tends to subdue the heat with the result that the general body as also the individual organs and tissues become cold and moist.

"Abnormal moisture aids the annihilation of heat in two ways. Firstly, by damping it down because of its moisture and secondly on account of its being a cold

"phlegm with a quality opposed to heat." (Kuliyat-i-Qanoon, Part I, para. 76):

If we remember that—

"Overactive and exaggerated functioning indicates excess of heat as also the rapidity of growth and movement, e.g., rapid growth of hair and (early) eruption of teeth. Weakness and sluggishness of the functions is a sign of coldness in the temperament." (Kuliyat-i-Qanoon, Part 2, para. 1012—1014).

We could readily see a close resemblance between the cold and moist, and hot and dry imbalances on the one hand and the states of vagotonia and sympatheticotonia on the other. Indeed this resemblance appears to be so close in the following tabulation by Reimann (16), that the movements of Vital Energy may be interpreted as being alternative type of discharge through the two vegetative pathways:

<i>Vagatonia</i>	<i>Sympatheticotonia.</i>
'Wet' type with increased oral, nasal, bronchial and other secretions.	'Dry' type with decreased secretions.
Low temperature.	High temperature.
Low basal metabolism.	High basal metabolism.
Low blood pressure.	High blood pressure.
Slow Pulse.	High Pulse rate.
Increased peristalsis.	Decreased peristalsis.
Vasodilation.	Vaso constriction.
Contracted pupil.	Dilated pupil.

According to our own knowledge the pathways controlling the constriction and dilation of the vessels are far from clear but according to Avicenna their movement being involuntary may be regarded as being subject to control by the Heart rather than by the brain of cognition and movement. In this way it appears as if it is through a common centre, in the hypothalamus that the differentiation of quantity by vasomotor control is integrated with that of quality in order that a larger number of unitary responses may be possible. In other words it is the metabolic centre which sends out heat to both the Vasomotor as well as to the Vagosympathetic system in order to differentiate the various responses in accordance with the biological requirements of the organism and the innate constitution.

"Individuals vary according to the strength of their innate heat and moisture."
(Kuliyat-i-Qanoon, Part 3, para. 35).

Vital System which is concerned in the production and utilisation of vital energy may therefore be accepted by us as a generalisation of the following facts of science :

1. Life and metabolism.

"Medical practitioners are generally agreed that both Brain and Liver receive the faculty of life (vital metabolism), innate heat (Basal metabolic activity) and Vital Force (Vital Energy) from the heart while being themselves centres of their own special systems." (Kuliyat-i-Qanoon, Part 1, para. 1717).

In this way the glucose and the various auxiliaries of this metabolic process the hormones, vitamins and enzymes could all be regarded as part of this vital metabolic system.

"Nervous system could only operate in the organs when the vital system is already there in existence. For even if the nervous system were to disappear from an organ, so long as its vital system is there it would still remain alive, e.g., an anaesthetic and a paralysed limb with its nervous connections with brain having been lost from disease or obstructions still remains alive but a part which really dies not only loses sensation and motility but also begins to decompose. Hence it is obvious that a paralysed organ still retains a faculty which is responsible for its life and which on the disappearance of the interrupting factors enables the return of sensation and movement. This causal factor as if merely interfered with its functional activity but did not remove its functional ability." (Kuliyat-i-Qanoon, Part 1, paras. 253-254).

2. Respiratory system which through the supply of oxygen and by the elimination of CO_2 and H_2O conditions vital energy.

3. Circulatory system with its afferent veins and efferent arteries, capillaries and tissue spaces which carry the vital energy

4. Vasomotor system which regulates the quantitative discharge of the mass in Vital Energy.

5. Autonomic nervous system which controls the qualitative discharge of the vital energy.

6. 'Purpose' as expressed in the form of emotions :

"as anger, fear and other allied emotions are expressed by the Vital Faculty they have been attributed to

this faculty. They are, however, determined by perception, imagination and other cognitive faculties." (Kuliyat-i-Qanoon, Part 1, para. 266).

According to Avicenna -

"The foundation or beginning of all these faculties is traceable to the Heart, as is agreed upon even by those philosophers who think that the source of visual, auditory and gasatory power lies in the Brain." (Canon of Medicine, D.V.C. 172).

This Heart, however, is not the structural heart of the anatomists. It is really the one centred in the diencephalon and yet pervading throughout the body. The centre of this heart is no doubt a portion of the brain but not of the Brain of cognition and movement. It is that portion of the brain which in the phylogeny of the human being is the earlier to develop and the one which really controls and regulates all the organs and organ systems. The Pituitary which presides over the function of this hypothalamic region may in this way be also included as being a part of the concept of 'Heart' in the Unani system.

6. Temperament or The Pattern of Qualities as a Whole

We have already learnt that temperament is the pattern of qualities as a whole which emerges from the action and reaction of the mass and energy and thus in the human organism of the structure and functions. As the basic qualities of the energy are heat and cold and of the mass dryness and moisture, their mutual interaction leads to the emergence of a new balance of qualities which varies with the quantitative proportion of the primary qualities. If this proportion were to be equal in the composition of an object the temperament or pattern of its qualities will have to be regarded as being absolutely balanced. An absolute balance of this kind, however, is impossible of achievement in that the opposing qualities of heat and cold, dryness and moisture would so neutralise each other that a compound of this nature would be entirely changeless.

"In Medicine, however, a division of this kind is quite untenable; a temperament could never be absolutely balanced or imbalanced. A balance (pattern or equilibrium) in the medical sense does not depend on an equal or unequal distribution of the qualities but

on their being equitable, meaning that the quality and quantity of the Elements are distributed in such a way that the resulting balance or pattern of the body as a whole or in its parts is the one which is the most appropriate for the human being (Kuliyat i Qanoon, Part, 1 para 32)

Hence the various patterns in the world of phenomenon have to be regarded as being relatively balanced or imbalanced as against their normal equilibria. Such imbalances could be recognised as being simple if there is a dominance of one quality and compound if there is a dominance of two,

'In simple imbalances (of the temperament) with dominances of only single qualities the increase may be in the (i) active qualities as (a) an excess of cold but not of dryness or moisture, (ii) reactive qualities as an excess of dryness but no excess of heat or cold (b) excess of moisture but no excess of heat or cold. Such imbalances however, never last for any length of time as they soon tend to get complicated, e.g. an imbalance in the direction of excessive heat quickly leads to dryness and a variation in the direction of cold increases the moisture. Dryness (no doubt) makes the body cold, but moisture provided it is in excess, makes it much more cold. If, however, increase of moisture is moderate the cold is produced only after a long time. From this it will be observed that heat is generally favourable than cold for maintaining the proper balance and general health of the body.

Compound imbalances have dominances in two of the qualities (i) Hot and moist, (ii) Hot and dry, (iii) Cold and moist, (iv) Cold and dry, there being no combinations of heat with cold and of dryness with moisture.

All the eight imbalances are determined either (a) Functionally when they arise *per se* e.g. cold from exposure to snow and hot from the presence of any morbid matter in the body, e.g. in tuberculous patients (b) With alterations in the humours as

when some morbid matter is present in the system e.g., cooling of the body from the vitreous serous humour and heat from the presence of leak of green bile. Illustrations of all the sixteen varieties will be

given in detail in Volumes 3 and 4." (Kuliyat-i-Qanoon, Part 1, paras. 53—56).

In the case of man also in other living forms the various patterns of temperament could be recognised under the following eight varieties:

- (i) A general balance or pattern of the species as a whole.
- (ii) Specific pattern of the most balanced individual of that species.
- (iii) General pattern of the geographical place.
- (iv) Specific pattern of the most balanced person of that race.
- (v) The general pattern of an individual as against other individuals of the race.
- (vi) The temporary balance (or equilibrium) of an individual which is the most suitable for his personal condition (e.g., age, season).
- (vii) The general pattern of an organ as opposed to that of other organs.
- (viii) The balance (or equilibrium) of an organ which is the most suitable for its own momentary state (rest or activity). (Kuliyat-i-Qanoon, Part 1, para. 34).

These patterns may now be described as follows.

(a) Pattern in respect of race

"Racial pattern is confined within the limits of the human balance. It depends upon the climatic and geographical position of the various people, e.g., Indians and Salves have their own racial patterns." (Kuliyat-i-Qanoon, Part 1, para. 38).

(b) Pattern in respect of residence and occupation.

"People living in Northern countries are moister as also those whose occupation involves work with water. If, however, their circumstances are of the opposite type they tend to become dry." (Kuliyat-i-Qanoon, Part, 1, para. 31).

(c) Pattern in respect of age.

"It may be summarised that children as well as grown ups are balanced in respect of their heat while the old and senile are relatively colder. Children possess a moderate excess of moisture to meet their requirements for growth. This could be observed from the softness of their body and nervous tissues and easily understood from the fact that it had not been long when they grew and developed from semen, blood and the vapoury vital fluid. The fact that old and senile individuals are not only cold but also dry could be observed from the hardness of their bones and dryness of their skin. This would also be clear if one remembers the fact that after all, a considerable time has passed since they had originally developed from blood, semen and the vital fluid. Children and adults both possess about the same degree of heat. Moisture and Air are, however, greater in children. Old and particularly the senile show greater degree of earthiness than adults and children. Adults and children are both balanced but adults more so than the children. They are more dry than children but not so dry as the old and senile. Senile are more dry than the adults in regard to their innate secretions but more moist in respect of the abnormal moisture which makes their tissues only temporarily and superficially moist."

(d) Pattern of the sex

"If temperamental difference are observed in the sexes then women are found to be colder than men. Hence they are of a smaller build. They are also more moist because their cold leads to the excessive formation of excrements and because they do not indulge in much activity their flesh tends to be loose and lax. A certain amount of looseness could be observed in the muscular tissues of the male but this is due to the presence of other structures like the nerves and vessels which have been tied in loose manner rather than integrated in the solidity of the flesh." (Kuhyat-i-Qanoon, Part 1, paras 78—80).

(e) Humoural and organic patterns.

"Heart which is 'centre of the forces' (energies) is the hottest organ in the body. Next is the Blood which though produced in the Liver from being in contact with the Heart is more hot. Then comes the Liver which is really a mass of solidified blood. After this is the flesh which from the presence of cold nervous structures is colder than the Liver. Then comes the muscle which is less hot than flesh because it possesses cold ligaments and tendons. After this is the spleen which on account of its high content of the broken up blood is hotter than the kidneys which have relatively little blood. After this are the breasts, testicles and muscular coats of the arteries which in spite of their nervous origin are warm as they contain the hot blood and vital fluids. Then come the veins which are slightly warm from the presence of blood in them. Lastly is the skin of the palm which is evenly balanced."

"The coldest thing in the body is the phlegm and then in the order of their coldness are the hair, bone, cartilage, ligaments, serous membranes nerves, spinal cord, brain, fats of the body and lastly the skin."

"Phlegm is the most moist After it comes the blood, fats, solid and liquid, brain, spinal cord, breasts, testicles, lungs, liver, spleen, kidneys, muscles and skin. This is the order laid down by Galen It must, however, be remembered that lungs in temperament, are really not so very moist. This is because the original temperament of an organ is (always) similar to that of its nutriment, while its temporary (or apparent) temperament is that of its excretions As according to Galen the lungs are nutritioned by the very hot blood which contains an appreciable quantity of the bilious humour (the lungs should have been more dry) but they really tend towards (moisture) because of vapours from the body and catarrhal secretions received from above. Thus Liver is moister. The lungs are moister due to their extraneous moisture. The constant soaking in these moistures tends to make the lungs structurally moist in the end."

"Similarly the moisture of Phlegm though really greater acts only on the surface while the Blood which has lost quite a proportion of it during maturation enters in the very structure of the organs This will be explained more fully later Phlegm may be regarded as an immature Blood for by suitable alteration it can be converted into blood "

"In dryness, the various organs are as follows (i) Hair, which are as if solid residues left over from the evaporation of moisture in the smoky vapours (of metabolism) (ii) Bones are the hardest of bodily organs They however, possess more moisture than (at least) hair as they are composed of Blood and also absorb (some) moisture from flesh with which they are in intimate contact It is on account of this that they provide nourishment to many animals while hair are reported to be eaten only by the bat After the bones are (iii) Cartilages, (iv) Ligaments, (v) Tendons (vi) Membranes, (vii) Arteries and Veins, (viii) Motor nerves, (ix) Heart, (x) Sensory nerves (xi) Skin Motor nerves are more cold and dry than the general body Sensory nerves though colder are not so dry In fact both in regard to their dryness and (perhaps) to some extent even in their coldness they are really not so very far from the general temperamental balance of the body " (Kuliyat i Qanoon Part 1, paras 59—63)

In addition to the above there are other factors which determine the temperamental status of man Some of these are innate while others are of a purely environmental nature

- (i) *Innate Factors* "Individuals vary according to the strength of their innate heat (metabolism) and their secretions They have their own fixed measures of life during which their bodies withstand the necessary wear and tear consequent upon normal life This measure is fixed according to the original constitution, the strength of metabolism and according to the unalterable quantity of the secretions On the other hand they may die earlier of causes which dry up and disperse the innate fluids or act in some other

(inimical) manner (drowning, injuries etc)." (Kuliyat-i-Qanoon, Part 8, Paras. 35—37).

From this it is clear that the innate constitution in at least man is due to the strength of faculties as expressed in the inherent tonacity of one or the other of the two vegetative pathways and to particular endocrinal and enzymatic set up of the individuals.

- (ii) *Environmental Factors*: These may be classified as being Heatening, Cooling, Drying, Moistening agents.

"1. *Heatening Agents* (i) Moderate quantity of food (ii) Moderate amount of physical and mental exertion. (iii) Moderate degree of massage. (iv) Moderate degree of petrissage. (v) Dry cupping, as the loss of blood in wet cupping produces coldness. (vi) Vigorous exercise. for a short period (vii) Hot type of foods. (viii) Hot type of medicines. (ix) Moderate use of hot baths. (x) Hot type of occupations. (xi) Hot applications provided they are not too hot, e.g., (moderately hot) airs and plasters (xii) Moderate degree of wakefulness. (xiii) Moderate amount of sleep under conditions which are otherwise normal. (xiv) Anger. (xv) Mild worry (anxiety) as when it is severe it produces cold. (xvi) Moderate indulgence in pleasurable activities (xvii) Putrefaction also produces heat in the body, but the heat produced is not the metabolic heat but merely an increase in the abnormal heat (body temperature). (xviii) Increased density of the skin as the contraction of pores reduces perspiration and thus increases heat in the body. (xix) Laxity of the internal organs which enables easier dissemination of the heat.

2. *Cooling Agents*: (i) Excessive activity by causing dispersion of the metabolic heat. (ii) Excessive repose which produces cold from the shrinkage of metabolic heat (reduction of metabolism) (iii) Excess of food and drink. (iv) Extreme reduction of food. (v) Cold type of foods (vi) Cold type of medicines. (vii) Application of extremely hot airs, waters and plasters. (viii) Excessive dilatation of the interior (capillaries) by causing the dispersion of metabolic heat. (ix) Pro-

longed applications of moderately hot things, e.g. prolonged stay in a hot bath (x) Undue increase in the density of the skin by causing an inward contraction of the metabolic heat (xi) Application of cooling things (xii) Application of things which though temporarily warm or hot are intrinsically cold (xiii) Undue retention of excretions by causing a shrinkage of the metabolic heat (xiv) Excessive depletions by causing a loss of material for the heat and the vital force (xv) Production of obstructions from the accumulation of waste products (xvi) Prolonged use of a tourniquet which blocks the passage of (blood which carries the) heat (xvii) Excessive worry (xviii) Excessive joy and pleasure (xix) Fear and anxiety in excess (xx) Cold type of occupations (washermans) (xxi) Immaturity of humours in the body as opposed to their putrefaction (which causes heat)

- 3 *Moistening Agents* (i) Rest (ii) Sleep (iii) Retention (iv) Elimination of drying matters (v) Excess of food (vi) Foods of moist quality (vii) Medicines of moist quality (viii) Applications which generally lead to increase of moisture e.g. Baths particularly after food (ix) Cold type of applications which increase the moisture by enclosing it (x) Applications which being mildly warming liquify the bodily secretions (xi) Moderate degree of pleasure

- 4 *Drying agents* (i) Activity (ii) Wakefulness (iii) Excessive evacuations (iv) Sexual intercourse (v) Inadequacy of food (vi) Foods of a dry quality (vii) Medicines with a drying action (viii) Repeated emotional outbursts (ix) Drying type of applications, e.g. bathing in a stringent water (x) Exposure to cold Cold leads to dryness by preventing the organs from properly absorbing the nutriment and further by unduly narrowing the absorptive channels of the organs (xi) Excessively hot applications which lead to excessive dissipation of moisture, e.g., excessive

use of hot baths." (Kuliyat-i-Qanoon. Part 2, paras. 457—473).

The influence of drugs on the Temperament: "In addition to what has been described above it is worth remembering that when a particular medicine is referred to as being evenly balanced it is never in the sense of its having an absolute Balance which is purely hypothetical. It also does not mean that its temperament is the same or even similar to the temperamental pattern of the body. It merely means this that such a medicine after being metabolised by the system (generally) fails to produce any material change in the normal status of the body and that its (pharmacological) actions lie within the confines of the normal human temperament. In other words it fails to produce any appreciable effect on the body and is thus evenly balanced.

When it is said that a medicine is hot or cold it does not mean that the (physical) quality of the medicine is extremely hot or cold or that it is either colder or hotter than the human body otherwise there would follow the unwarranted inference mentioned above that an evenly constituted medicine is the one which is exactly like the human body. It means just this that such a medicine produces a greater or a smaller degree of heat or cold than what was originally present in the body. A medicine which for example is cold for the human being, may be hot for the scorpions or a medicine which may be hot for man is cold for the serpent. In fact it may also mean that the same medicine may be less hot for one as against another individual. It is just because of this that Physicians are advised to change over the medicine which fails to produce the expected results." (Kuliyat-i-Qanoon, part 1, paras 50—52).

SIGNS OF CONGENITAL AND LASTING TEMPERAMENTS

(Tabulated from *Kuliyat-i-Qanoon*, Part 2, paras 964-1023)

	Hot	Cold	Dry	Moist	Hot & Moist	Hot & Dry	Cold & Moist	Cold & Dry
1. Morphological								
a Feel of body		Soft						
b Present of fat muscle								
c Hair—								
Growth					Thick		Fine	
Amount						Curly		
Form							Grey	
Colour	Dark	Brown						
d Skin			Dry and rough					
e Complexion	Brown White	Pallor			Ruddy	Yellow	Chalky	Purple
		Blue						
f Body Build	Broad chest		Prominence of joints					
	Muscular		Cartilages of nose thin and erect					
	limbs, Inconspicuous joints							
2 Physiological								
a Functional state of organs	Over active and exaggerated function							
	Rapidity of movement							
	Rapidity of growth							
b Sleep								
c Pulse	Large	Small	Narrow	Wide				
		Slow in rate & Speed	and hard	and wavy				
d Excretions	Strong & powerful odours							
	High colour							
	Proper maturation							
3 Psychological								
	Violence of anger							
	Intensity of sorrow							
	Acuteness of intelligence							
	Bravery							
	Recklessness							
	Optimism							
	Stamina							

The Diagnostic Signs of Temporary and Acquired Qualities of Temperament.

“Signs of temporary and acquired qualities in the temperament are given below:—

- I. *Excessive Heat*—(i) Feelings of uncomfortable heat. (ii) Suffer greatly from fevers; (iii) Easy fatiguability as activity stimulates a further production of heat; (iv) Excessive thirst. (v) Burning and irritation in the pit of the stomach (epigastrium), (vi) Bitter taste in the mouth, (vii) Pulse weak; rapid and fast, (viii) Intolerance for hot foods, (ix) Comfort from the use of cold things. (x) Suffer greatly during summer.
- II. *Successive Cold*—(i) Weak digestions, (ii) Diminished desire for drinks, (iii) Laxity of joints, (iv) Predisposition for Phlegmatic type of fevers and catarrhal conditions, (v) Cold things easily upset and hot things are pleasing and beneficial, (vi) Suffer greatly during winter.
- III. *Excessive Moisture*—Signs are almost similar to those of the cold but in addition there will be (i) puffiness, (ii) excessive salivation and nasal secretion, (iii) tendency to diarrhoea and dyspepsia, (iv) indulgence of moist type of foods, (v) excess of sleep, (vi) puffiness of the eyelids.
- IV. *Excessive Dryness*—(i) Dryness of the skin, (ii) Insomnia, (iii) Wasting, (iv) Intolerance of dry type of foods while moist things will be refreshing, (v) Suffer greatly during autumn and (vi) Hot water and light oils are readily absorbed by the skin.” (Kuliyat-i-Qanoon, Part 2, paras. 1025-1028.)

From the foregoing description of the temperament, it will be observed that the Unani system offers us with a conception of the constitution which is much wider than any known to us. Unlike the conception of Hess and Eppinger which is limited to two types the Unani conception gives us 16 major varieties from which many more could be deducted to meet minor variations.

In the following table the varieties of the congenital temperament have been correlated with the various constitutional types as recognised by clinicians from time to time in order that their understanding may be rendered more clear

Table of correlation with other Constitutional types

Avicenna	Hot & Moist	Hot & Dry	Cold & Moist	Cold & Dry
Charaka	Satvic	Rajasic	Tamasic	Tamasic
Hippocrates(460 B C)	Sanguineous	Choleric	Phlegmatic	Melancholic
Rostan (1828)	Masculaire	Respiratoire	Digestif	Cerebral
Carus (1852)	Athletic	Asthenic	Phlegmatic	Asthenic & Cerebral
Laycock	Sanguineous	Nervous Bilious	Phlegmatic Lymphatic	Melancholic
Kretschmer	Athletic Pyknic	Asthenic	Pyknic	Asthenic Dysplastic
Jung	Extrovert	Extrovert	Introvert	Introvert
Hurst	Hyperasthenic Gastric Diathesis	Hyposthenic Gastric Diathesis	Gallbladder	Asthma & Migraine
Pearson & Wyllie	Lymphatic	Neuroarthritic	Lymphatic	Neuroarthritic
Hess & Eppinger	Sympathetico tonic	Sympathetico tonic	Vagotonic	Vagotonic
Danielopolu	Amphotonic	Sympathetico tonic	Vagotonic	Ampho Hypotonic

It will be unnecessarily lengthy to enter into an explanation of the various correlations suggested above but by way of illustration it may be stated that in the classification by Kretschmer the emphasis being on the physical habitus both the hot and dry and cold and dry temperaments which have an asthenic habitus have been shown opposite the asthenic of Kretschmer though they differ from each other in being physically hyperactive and sluggish respectively

Conclusion

Western system of medicine is in need of urgent reform. Though impressive in the collection of facts it is still barren in ideas. There is too much of 'specialism' and too little of thoughtful practice. Unani Tibb though poor in factual data is rich in general principles. In the past these principles have been regarded as being contradictory of the facts of science but in the light of more modern knowledge they appear to be generalisations of such a wide nature that they could now be accepted by us.

In this paper I have tried to point out that :

- (a) the four Elements(arkan) of Unani Tibb which had been antiquated by the now known 92 chemical elements are not the literal fire, air, water and earth but merely symbols of the primary qualities of mass and energy.
- (b) the Vital Force (rooh) is neither "soul" of the philosophers nor the 'breath' as Galen thought but a simple generalisation of the energy employed in the growth and differentiation of all life.
- (c) the Faculties (qawa) are not any set and rigid entities as was held by Aristotle but the three inter-related and inter-dependent physiological systems of the organism.
- (d) Temperament (mizaj) with its imbalances of heat, cold, dryness and moisture is no myth but a conception which enables us to picture the various qualities of structure and function as a unified whole.

It is suggested that if these interpretations of the 'arkan', 'arwah', 'qawa' and 'mizaj' are in the main correct, they could be suitably altered and adapted for the rationalisation of our own system, and in India and Pakistan, where there is such a serious shortage in the number of doctors, we could modernise Unani Tibb to give us new type of *tabibs* who being blessed with the knowledge of general principles rather than loaded with the minutiae of scientific detail, could willingly act as our basic doctors in dealing with diseases like malaria, typhoid, dysentery and cholera which are responsible for nearly 75% of deaths in this country.

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References

Although much help has been received from many works only those which have actually been referred to in the text have been listed below It is regretted that due to the lack of a handy library I have not been able to give more precise references than to what I am indicating below

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स्मृतम् । तन्त्रस्यास्य तदर्थं हि वेदोऽयं समप्रवाशितः ॥” (च. सू. अ. १) यह लिखकर स्थूल शरीर, सूक्ष्म शरीर, और आत्मा के विभिन्न मिलनसे कर्म पुरुष की उत्पत्ति बताई है । इस कर्मपुरुष को ही रोग होता है और उसकी ही चिकित्सा होती है । उसके लिए ही आयुर्वेद तंत्रका प्रयोजन है । जिसको रोग होता है, जिसकी चिकित्सा की जाती है उसके स्वरूप और प्रकृति को न जानकर प्रकृतिविज्ञान या शरीर क्रियाविज्ञान (फिजियोलॉजी) समझने का यत्न तथा प्रकृति को न समझ कर विवृति-विज्ञान (पैथॉलॉजी) समझने की चेष्टा अपूर्ण ही नहीं किन्तु भ्रम पूर्ण रह जाती है । इसलिये आयुर्वेद का प्रकृति-विज्ञान का आरम्भ कर्मपुरुष की प्रकृति से आरम्भ होता है । इसका एक और महान् उद्देश्य भी है, अन्यान्य चिकित्सा शास्त्र में केवल ज्वरादि रोगों के विज्ञान और चिकित्सा का वर्णन है, किन्तु आयुर्वेद इतने में सीमित नहीं है । आयुर्वेद में दुःखमात्र को रोग माना जाता है । जन्म, मृत्यु, जरा, क्षुधा, पिपासा आदि को भी स्वाभाविक रोग माना गया है । इनकी चिकित्सा भी आयुर्वेद में वर्णित है । इस प्रकार का वर्णन और किसी चिकित्साशास्त्र में नहीं है ।

ज्वरादि शारीर रोग, उन्मादादि मानस रोग, छिन्न भिन्न आदि आगन्तुक रोग तथा जन्म, मृत्यु, जरा प्रभृति स्वाभाविक रोगों को जानने के लिए जिस प्रकृतिविज्ञान और विवृति-विज्ञान की आवश्यकता है उसके यथार्थ ज्ञान के लिए जगत् की सृष्टि का रहस्य भी समझना पड़ता है । चरक संहिता में लिखा है कि “जगत् में जितने सूर्तिमान् भाव-विशेष हैं, शरीर में भी वे सब हैं तथा शरीर में जो जो भावविशेष हैं जगत् में भी वही हैं ।” “यावन्तो हि लोके भूर्तिमन्तो भावविशेषास्तावन्तः पुरषे, यावन्तः पुरषे तावन्तो लोके” (च. स. अ. ४) । इसका अभिप्राय यह है कि एक जीवित पुरुष के यथार्थ ज्ञान से समस्त जगत् का रहस्य ज्ञान हो जाता है, तथा एक पुरुष को समझने के लिए समस्त जगत् को समझना पड़ता है । यह जगत् जिस नाटक का राज संस्करण है, एक पुरुष उसी नाटक का एक क्षुद्र संस्करण है । कि जिस प्रकार आकाश, वायु, तेज, जल, पृथिवी और परमात्मा से यह जगत् बना है, उसी प्रकार आकाशादि पांच भूत और जीवात्मा से पुरुष बना है । “पांच भूत और परमात्मा से जगत् की उत्पत्ति होती है ।” यह प्राचीन सांख्यशास्त्र का मत है । पुरुष का वर्णन चरक संहिता के सूत्रस्थान में इस प्रकार है “पञ्च धातुजस्तु पुरुषो रोगाः पञ्चधातुजास्तथा । राशिः पञ्चधातु-जस्येव सांख्यैराद्यैः प्रकीर्तितः ॥” (च. सू. अ. २५) शरीर और जगत् की सृष्टि के रहस्य को समझने के लिए पंच भूत और आत्मा को समझना अत्यन्त आवश्यक है । कारण यह है कि किसी द्रव्य के घटक अर्थात् उपादान को नहीं जानकर उस वस्तु का यथार्थ ज्ञान प्राप्त करना असम्भव है ।

भूत, महाभूत और भौतिक

सांख्य शास्त्र में शब्दतन्मात्र, स्पर्शतन्मात्र, रूपतन्मात्र, रसतन्मात्र और गन्धतन्मात्र को सूक्ष्मभूत कहा गया है । शब्दतन्मात्रसे समुत्पन्न आकाशको, शब्दतन्मात्र जिसका सहकारी कारण है ऐसे स्पर्शतन्मात्रसे समुत्पन्न वायुको, शब्दतन्मात्र और स्पर्शतन्मात्र जिसका सहकारी कारण है इस प्रकारके रूपतन्मात्रसे समुत्पन्न तेजको, शब्द-स्पर्श-रूपतन्मात्र जिसका सहकारी कारण है इस प्रकारके रसतन्मात्रसे समुत्पन्न जलको तथा शब्द-स्पर्श-रूप-रसतन्मात्र जिसका सहकारी कारण है इस प्रकारके गन्धतन्मात्रसे समुत्पन्न पृथिवीको स्थूलभूत या महाभूतसंज्ञासे उल्लेख किया गया है । इस मतसे शब्दतन्मात्रमें केवल अशब्द शब्द गुण, स्पर्शतन्मात्रमें केवल अशब्द स्पर्श गुण, रूपतन्मात्रमें केवल अशब्द

रूपगुण, रसतन्मात्रमें केवल अत्यक्त रसगुण तथा गन्धतन्मात्रमें^१ केवल अत्यक्त गन्ध गुण विद्यमान है; किन्तु इनसे समुत्पन्न स्थूल भूतोंमें से स्थूल आकाशमें द्रव्य शब्द गुण, स्थूल वायुमें द्रव्य शब्द और स्पर्श गुण, स्थूल तेजमें द्रव्य शब्द स्पर्श और रूप गुण, स्थूल जलमें द्रव्य शब्द-स्पर्श-रूप और रस गुण तथा स्थूल पृथिवीमें द्रव्य शब्द-स्पर्श-रूप रस और गन्ध गुण इस प्रकार क्रमसे एक, दो, तीन, चार और पाँच बहिरिन्द्रिय ग्राह्य विशेष गुण हैं।

न्याय और वैशेषिक मतका परमाणुस्वरूप मूल -

किसी स्थूल वस्तु को उस का क्रमशः विभाग और विच्छेदन होते-होते अन्त में ऐसे एक परम सूक्ष्म अवयवमें उपस्थित होना पड़ेगा जिसका कल्पनासे भी विभाग नहीं हो सकेगा। क्योंकि जयतक अनेक अवयव मिलित हैं, तबतक ही विभाग हो सकेगा। जयतक दो अवयव भी मिलित हैं तबतक भी अन्ततः कल्पना से विभाग हो सकता है। किन्तु जब अन्तमें एक ही अवयव रह जायगा अवयवी ही नहीं रहेगा—फिर उसका विभाग होना असंभव है। यदि उसका भी विभाग माना जावे और उसको अवयवी माना जावे तो अवयव अवयवी धारा का कहीं भी विधाम नहीं होनेसे, सब ही वस्तु अनन्तावयवविशिष्ट, अतएव समपरिणाम बन जाती हैं। इसलिये परमाणुको एकमात्र अवयव मानकर, जिसमें आधिक अवयव हैं उसको स्थूल और जिसमें अत्यल्प अवयव हैं उसको सूक्ष्म माना जा सकता है। अवयवीका विभाग करते करते चाहे वह कल्पनाद्वारा ही हो जब एकावयवमें पहुँचते हैं, उस परमसूक्ष्म एकावयवविशिष्ट वस्तु को परमाणु कहते हैं। परम अर्थात् सबसे छोटा, अणु अर्थात् सूक्ष्मपरिमाण वस्तु की परमाणु संज्ञा है। उससे सूक्ष्म पदार्थ की कल्पना भी नहीं हो सकती है। जिससे छोटी और जिससे बड़ी कोई अन्य वस्तु हो सकती है उसको मध्यमपरिमाण कहते हैं। जो सबसे छोटी वस्तु है वही परमाणु है। उत्पत्ति-विनाशरहित वस्तु को नित्य कहा जाता है। परमाणु की भी उत्पत्ति नहीं हो सकती है, नहीं विनाश हो सकता है, अतएव परमाणु नित्य वस्तु है। इसमें कारण यह है कि - एक द्रव्य की उत्पत्ति के लिये तीन प्रकार के कारण की आवश्यकता होती है - (१) समवायी कारण, (२) असमवायी कारण और (३) निमित्तकारण। समवायीकारण - जिसमें कार्य समवेत होता है अर्थात् जिनके परस्पर मिलने से कार्य उत्पन्न होता है, जैसे वस्त्र के लिये सूत्र। कार्यद्रव्य के अवयव ही "समवायी कारण" कहलाते हैं। "द्रव्य ही समवायी कारण बनता है" ऐसा नियम है। असमवायीकारण... समवायी कारण में आश्रित रहकर जो कार्य का उत्पादक होता है उसको असमवायीकारण कहते हैं। जैसे वस्त्र के लिये सूत्रों का विचित्र संयोग। गुण और कर्म ही असमवायी कारण बन सकते हैं। किसी कार्य-द्रव्य के विनाश के लिये उस के असमवायीकारण का नाश होना आवश्यक है। असमवायीकारण के नाश हो जाने पर समवायी कारण के रहते हुए भी कार्यद्रव्य का नाश हो जाता है। जैसे - सूत्रों के विचित्र संयोग नष्ट हो जावे तो सूत्रों के रहने पर भी वस्त्र का नाश हो जाता है। इसलिए कार्यनाश के लिये समवायीकारण का नाश होना ही चाहिये ऐसी आवश्यकता नहीं है। समवायी कारण का नाश से भी कार्यद्रव्य का नाश हो जाता है। जैसे—सूत्रों के नाश से वस्त्र का नाश होता है।

निमित्तकारण—कार्य का कर्ता, कर्ता के साधन आदि निमित्त कारण कहलाते हैं। कार्य की उत्पत्ति के लिये ही निमित्त कारण की आवश्यकता है। किन्तु कार्य

घ्रसरेणु को हम प्रत्यक्ष कर सकेंगे। घ्रसरेणुसे बहुत बड़ी वस्तुको भी हमारी इंद्रियशक्ति ग्रहण करनेमें असमर्थ है यह तो परीक्षित सत्य सिद्धान्त है। किसी घरमें कर्पूर या कस्तूरी की गन्ध का अनुभव होनेपर यह मानना पड़ेगा कि—घरकी वायुमें कर्पूर या कस्तूरी के कण फैले हुए हैं। इसमें सदेह नहीं कि उन कणों में पोंचों भूतों के कण मिले हुए हैं। जिनमें से कर्पूर की अथवा कस्तूरी की गंधका अनुभव होता है। कर्पूर-कस्तूरी आदि के कणोंमें रूप भी है। सहस्रगुण स्थूल परके दिखलानेवाले सूक्ष्म दर्शक यंत्रद्वारा उन कर्पूर या कस्तूरी के कणोंके रूपका प्रत्यक्ष करना असंभव है, जिसके गंधका प्रत्यक्ष अनुभव प्राणेन्द्रिय द्वारा हो रहा है। एक शुक्राणु के अंदर समस्त शरीर का बीज तथा कुष्ठादि आनुवंशिक रोगों के बीज विद्यमान रहते हैं, किन्तु सबसे अधिक शक्तिशाली सूक्ष्मदर्शक यंत्रद्वारा उनका प्रत्यक्ष दर्शन नहीं होता है। इससे सिद्ध होता है कि पांच भौतिक वस्तुके सूक्ष्म कण जब इतने सूक्ष्म हैं तो घ्रसरेणुका प्रत्यक्ष करना कितना कठिन है। जब आकाश भूतसे द्व्यणुकघ्रसरेणुक आदि क्रमसे स्थूल आकाश या महाकाश उत्पन्न होता है उस समय अन्य चारों भूत परमाणुस्वरूपमें रहते हैं। परमाणु दूसरे स्थूल भूतके साथ मिल कर उसमें अपना गुण नहीं उत्पन्न कर सकता है। एक जातीय परमाणु दूसरे जातीय परमाणु से मिलकर द्व्यणुक बनावे तो उसमें विशिष्ट शब्दादि की उत्पत्ति नहीं हो सकती है। अतएव परमाणुस्वरूप आकाशमें जो अव्यक्त शब्द रहता है वही शब्द महाकाशमें व्यक्त होता है। सारंश दर्शनमें मानते हैं कि शब्दतन्मात्रमे अविशेष (अव्यक्त) शब्द तथा स्थूलाकाशमे विशेष (व्यक्त) शब्द गुण है। स्थूल आकाश महाभूत हैं।

स्थूल वायु या महावायु की उत्पत्ति :— आकाश स्थूल होकर जब महाभूत बन जाता है उसके बाद आकाशके सहयोगसे महावायु उत्पन्न होता है। अर्थात् परमात्मा की इच्छासे स्पर्शमात्र गुणविशिष्ट स्पर्शतन्मात्र या वायुपरमाणुमें आरम्भक सयोगानुकूल क्रिया उत्पन्न होती है, जिससे दो दो वायुपरमाणु मिलकर वायुके द्व्यणुक उत्पन्न करते हैं। फिर तीन वायुद्व्यणुक मिलकर घ्रायुघ्रसरेणु बनाते हैं। आगे वायुके घ्रसरेणु और स्थूलाकाश के घ्रसरेणु उपष्टम्भाख्य संयोग से मिलित होकर (अर्थात् रासायनिक मिलनद्वारा) महावायु या वायुमहाभूत को उत्पन्न करते हैं। वायु माभूतके साथ आकाश महाभूत भी उपष्टम्भाख्य संयोग से मिलित रहता है, इसलिये वायु-महाभूत में घ्रायुभूत का गुण स्पर्श तथा अनुप्रविष्ट आकाश महाभूतका गुण शब्द मिलकर स्थूल वायु शब्द और स्पर्श दो गुणयुक्त होता है। जिस समय महावायु उत्पन्न होता है उससे पूर्व महाकाश उत्पन्न हुआ था। अतः महाकाश वायु में अनुप्रविष्ट हो कर उसमें अपने गुण को भी उत्पन्न कर सकता है। किंतु उस समय तक तेज आदि भूत परमाणुरूप में ही है, अतः स्थूल वायु से मिलकर अपने गुणों की उत्पत्ति नहीं कर सकते। महावायु में व्यक्त स्पर्श तो माना जाता है, किन्तु वह स्पर्श अनुष्णाशील है। महातेज की उत्पत्ति :— महावायु की उत्पत्ति होने के बाद परमात्मा की इच्छा से अव्यक्त रूपमात्र गुणविशिष्ट रूपतन्मात्रनामक तेज परमाणु में आरम्भक सयोगानुकूल क्रिया उत्पन्न हो कर दो तेज परमाणु से तेज के द्व्यणुक उत्पन्न होते हैं। फिर तीन तेज के द्व्यणुक मिलकर तेज के घ्रसरेणु बनाते हैं। इसके बाद तेज के घ्रसरेणु के साथ महाकाश और महावायु के घ्रसरेणु भी उपष्टम्भाख्यसंयोगसे मिलित होकर व्यक्त शब्द स्पर्श-और रूप गुणयुक्त तेज महाभूत को उत्पन्न करते हैं। -तेजमें आत्माशुक्ल रूप

है। वायुका अनुष्णाशीत स्पर्श तेजके संसर्गसे उष्णरस बन जाता है। जब स्थूल तेज उत्पन्न हुआ था उससे पूर्व आकाश और वायु स्थूल हो चुके थे, इसलिये आकाश और वायु के प्रसरेणु तेज के प्रसरेणु के साथ मिलकर उपष्टम्भाय संयोगद्वारा स्थूल छेजमे तेजके गुणरूपके साथ अपने गुण शब्द और स्पर्श की उत्पत्ति कर देते हैं, जिससे स्थूल तेजमें शब्द स्पर्श और रूप—ये तीन गुण होते हैं। किन्तु उस समय तक परमाणुरूपमें अवस्थित जल और पृथिवी तेज के साथ मिलित होकर उसमें अपने गुण उत्पन्न नहीं कर सकते हैं।

स्थूल जलकी उत्पत्ति :—स्थूल तेज के बाद परमात्माकी इच्छासे अत्यक्त रस-मात्र गुणविशिष्ट रसतन्मात्रनामक जलपरमाणुमें आरम्भक संयोगानुकूल क्रिया उत्पन्न हो कर पूर्वोक्त क्रमसे आकाश, वायु और तेज के अनुप्रवेशद्वारा शब्द स्पर्श रूप और रसगुणयुक्त स्थूलजल या जलमहाभूत (महाजल) उत्पन्न होता है। स्थूल जलमें रस भी व्यक्त है, किन्तु केवल जलका रस मधुरादि रूपमें व्यक्त नहीं हो सकता है। महापृथिवी की उत्पत्ति के बाद पाँचो भूतों के विशिष्ट मिलनसे अन्य दो दो भूतोंके प्राधान्यसे मधुरादि पचूस उत्पन्न होते हैं। जिनका वर्णन आगे होगा।

महापृथिवीकी उत्पत्ति :—स्थूलजल के बाद ईश्वरेच्छासे अत्यक्त गन्धतन्मात्रगुण-विशिष्ट गन्धतन्मात्र नामक पृथिवी परमाणुमें आरम्भक संयोगानुकूल क्रिया उत्पन्न हो कर, द्रव्यगुणादि क्रमसे प्रसरेणु उत्पन्न हो कर, स्थूल आकाश, वायु, तेज और जल के प्रसरेणु के साथ उपष्टम्भाय संयोगद्वारा व्यक्त शब्द-स्पर्श रूप-रस और गन्ध गुण युक्त महापृथिवी उत्पन्न होती है।

इस उत्पत्ति क्रमसे स्पष्ट है कि-आकाश भूत में अत्यक्त शब्द वायुभूत में अत्यक्त स्पर्श तेज भूतमें अत्यक्त रूप जलभूतमें अत्यक्त रस और पृथिवीभूतमें अत्यक्त गन्ध है। किन्तु आकाशपहाभूत में व्यक्त शब्द, वायुमहाभूतमें व्यक्त शब्द और स्पर्श, तेजमहाभूतमें व्यक्त शब्द स्पर्श और रूप, जलमहाभूतमें व्यक्त शब्द स्पर्श रूप और रस तथा पृथिवी महाभूतमें व्यक्त शब्द स्पर्श रूप रस और गन्ध गुण विद्यमान है। इस सिद्धान्त को चारक ने स्पर्शरूप से कहा है - “तेषामेकगुणः पूर्वो गुणवृद्धिः परे परे। पूर्व, पूर्वो गुणश्चैव क्रमशो गुणिषु स्मृतः ॥” (च. स. १)। प्रत्येक भूत में एक एक ईद्रियगोष्ठ विशेष गुण तथा आकाश महाभूतमें केवल शब्द गुण तथा वायु आदि अन्य महाभूतों में पूर्व पूर्व महाभूत के अनुप्रवेशसे क्रमशः दो, तीन, चार और पाँच गुण होते हैं। वायु, तेज, जल और पृथ्वी महाभूतमें पूर्व पूर्व महाभूत अनुप्रविष्ट है, फिर भी वायु महाभूतमें वायुभूतका, जलमहाभूतमें जलभूतका, तेजमहाभूतमें तेजमहाभूतका और पृथिवी महाभूतमें

१ यहाँ उष्ण का यह अभिप्राय नहीं है कि हमारे स्पर्शनेन्द्रिय से-उष्ण अनुभव हो। यहाँ यह स्मरण रखना चाहिये कि हमारे शरीर का ताप ९८ डिग्रीके लगभग है। उससे अधिक तापवालेको हम उष्ण और उससे अल्प तापवालेको शीत कहकर लौकिक व्यवहार करते हैं। किन्तु वास्तविक रूपसे जिसमें १० डिग्री ताप है और जिसको हम शीत कहते हैं, वह भी द्रव्य (क्षीरो) डिग्री तापवालेसे उष्ण ही है। अतः वायुका अनुष्णाशीत स्पर्श तेजके सम्पर्कसे ही उष्ण अनुभूत होता है। जिसमें तेज की मात्रा, जितनी अधिक होगी वह उतना ही उष्ण प्रतीत होगा। उष्णता बढ़ते बढ़ते हमारे शरीरसे अधिक उष्ण हो जाने के बाद ही हम उसको उष्ण अनुभव करते हैं।

पृथिवीभूतका ही प्राधान्य रहता है। महाभूतका मूल उपदान तो भूत ही है इसलिये उनका ही प्राधान्य रहना चाहिये।

हृदय महाभूत

सृष्टि के प्रारंभमें पूर्वोक्त त्रयसे भूतोसे महाभूत उत्पन्न होकर परस्पर मिश्रित हो जाते हैं। मिश्रित होनेसे पहले अपचीकृत महाभूत कहलाते थे और मिश्रित होनेके बाद पचीकृत महाभूत कहलाते हैं। पंचीकृत महाभूतोंसे ही विभिन्न अंगों की सृष्टि हुई है। इस बातको वेदान्त और आयुर्वेद मानते हैं। फिर भी वेदान्तके पचीकरण से आयुर्वेद के पचीकरणमें कुछ अंतर है। वेदांत के पचीकरणमें पचीकृत पृथिवीमें अर्ध-भाग पृथिवीमहाभूतका और शेष प्रत्येक महाभूत के अष्टमांश भाग माने गये हैं। इस प्रकार जल आदि पचीकृत महाभूतमें भी उस भूतका अर्धभाग तथा शेष प्रत्येक चार महाभूतोंका अष्टमांश माना गया है। अतएव इस प्रकार निम्नपरिमाणका मिश्रण नहीं माना जाता है। सब हो महाभूतों में सब ही महाभूतों का अनुप्रवेश मात्र माना जाता है। सुश्रुतमें स्पष्ट लिखा है कि — “अन्योन्यानुप्रविष्टानि सर्वाण्येतानि निर्दिशेत्। स्वे स्वे द्रव्ये तु सर्वेषां व्यक्तं लक्षणमिष्यते ॥ (सु शा १)। आकाशादि सब द्रव्य महाभूतों में अन्य सब महाभूत अनुप्रविष्ट हैं। पृथिवी, जल आदि नामसे प्रसिद्ध द्रव्यों में पृथिवी, जल आदि के लक्षण व्यक्त रहते हैं। अतएव सिद्ध हुआ कि पृथिवी, जल, तेज, वायु और आकाश नामवाले जिन द्रव्यों से हम परिचित हैं वे सभी पंचभौतिक द्रव्य हैं। इसके बाद जो जो भौतिक द्रव्य उत्पन्न होते हैं वे सभी पांचभौतिक हैं।

आयुर्वेद का सिद्धान्त है कि स्थूल और सूक्ष्मसे सूक्ष्म जितने भौतिक द्रव्य सृष्टिकालमें उपलब्ध होते हैं वे सभी पाँचों महाभूतोंके विशिष्ट मिलनसे बनते हैं। इसलिये सभी द्रव्यों के समवायी कारण पाँच भूत हैं। अथ एव सब द्रव्य पांच भौतिक कहलाते हैं। चरक संहितामें लिखा है कि—पृथ्वी आदि पाँचों भूतों के समुदायसे द्रव्य (कार्यद्रव्य) की उत्पत्ति होती है। यद्यपि सभी द्रव्य पांच भौतिक हैं, तथापि जिस द्रव्योंमें जिस महाभूतका उत्कर्ष होता है, उस महाभूत के अनुसार उसका नाम निर्धारित होता है। जैसे—जिस द्रव्यमें पृथ्वी महाभूतका आधिक्य है उसको पार्थिव, जिसमें जलका भाग अधिक होता है उसको जलीय, जिसमें तेजका भाग अधिक होता है उसको तेजस, जिसमें वायुका भाग अधिक होता है उसको वायवीय और जिसमें आकाश का भाग अधिक होता है उसको आकाशीय कहते हैं। पार्थिव का अर्थ केवल पृथ्वीसे बना हुआ ऐसा नहीं है। किन्तु “पृथ्वी की मात्रा जिसमें अधिक है” ऐसा है। इस प्रकार प्रत्येक द्रव्य पाँचों महाभूतोंसे बना हुआ होता है।

भूतोंसे महाभूतों की उत्पत्ति सृष्टि के प्रारम्भमें ही होती है और सृष्टिके प्रारम्भमें ही सब महाभूत परस्पर मिलित हो जाते हैं। इस प्रकार मिलन भी सृष्टिकर्ता परमेश्वर की इच्छासे हो जाता है। फिर इन महाभूतों का विश्लेषण भी परमेश्वर की इच्छा से महाप्रलयकालमें ही होता है। अर्थात् महाभूतोंमें जब विनाशानुकूल क्रिया उत्पन्न होती है, तब ही अन्य द्रव्यों का विनाश होकर महाप्रलय हो जाता है। सृष्टिकालमें महाभूतों का विश्लेषण नहीं होता है। पांच भौतिक द्रव्यों से पांच भौतिक द्रव्य उत्पन्न होने रहते हैं। और अन्य द्रव्य का विनाश होकर भी अवशिष्टांश पांच भौतिक ही रह जाता है।

पाँचभौतिक द्रव्यों में एकैन्द्रिय ब्राह्म शब्द, स्पर्श, रूप, रस और गन्ध इन गुणों के अतिरिक्त पार्थिव द्रव्यों में काष्ठिय और गुरुत्व; आप्य (जलीय) द्रव्य में द्रवत्व, गुरुत्व और शैत्य; आग्नेय द्रव्यों में उष्णत्व और लघुत्व; वायव्य द्रव्यों में चलत्व (गति) और लघुत्व; तथा नाभस (आकाशीय) द्रव्यों में अप्रतिघातकत्व, लाघव और शीघ्रिय (पोल) ये स्पर्शेन्द्रिय ब्राह्म गुण प्रधानतः रहते हैं।

प्रत्येक भूत में बहिरिन्द्रियब्राह्म विशेष गुण एक एक है या एक और अनेक :—इस पर विचार करते हुए दिखलाया गया है कि परमाणुस्वरूप भूत में एक एक गुण ही है। इन भूतों से उत्पन्न होनेवाले महाभूतों में प्रथमः एक एक गुण की वृद्धि होती है। प्रत्येक भूत में एक एक गुण न मानें तो श्रोत्रेन्द्रिय से केवल शब्द का, स्पर्शेन्द्रिय से केवल स्पर्श का, चक्षुरिन्द्रिय से केवल रूप का, रसेन्द्रिय से केवल रस का, और घ्राणेन्द्रिय से केवल गन्ध का ज्ञान क्यों होता है? अर्थात् एक एक इन्द्रिय नियम पूर्वक एक एक विषय को ही क्यों ग्रहण करती है इसका समाधान नहीं हो सकता है। आयुर्वेद का कहना है कि—जिस इन्द्रिय में जिम भूत का प्राधान्य है उस इन्द्रिय से उस भूत के विशेष गुण को ही जाना जा सकता है दूसरे गुण को नहीं जाना जा सकता। इस को विस्तार से इस तरह समझेंगे—स्थूल दृष्टि से देखा जाता है कि प्रत्येक ज्ञानेन्द्रिय से उसके विषय का सन्निकर्ष होने पर ही प्रत्यक्ष हो सकता है। प्रत्यक्ष के लक्षण में भी लिखा है कि “इन्द्रियार्थसन्निकर्षोऽग्नं ज्ञानं प्रत्यक्षम्।” अर्थात् इन्द्रियों का विषय के साथ सन्निकर्ष (सम्बन्ध) होने पर जो ज्ञान होता है उसको प्रत्यक्ष कहते हैं। सब इन्द्रियों को प्राप्यकारी माना जाता है। शास्त्रकारों का यह भी मत है कि इन्द्रिय विषय देश में जाकर ही विषय का ज्ञान करती है (इन्द्रियं हि विषयदेशं गत्वा विषयं परिच्छिनत्ति)। वहाँ पर दो संकाएँ होती हैं एक तो यह कि—इन्द्रिय विषय देश में जाकर विषय का ज्ञान करती है इसका तात्पर्य क्या है? और दूसरी यह कि विषयका सन्निकर्ष तो इन्द्रिय के बहिर्द्वार में ही होता है, क्योंकि शब्द, स्पर्श, रूप, रस और गन्ध—ये पाँच इन्द्रिय ब्राह्म विषय गुण पदार्थ हैं। ये अपने अपने आश्रय भूत द्रव्य में ही रह सकते हैं। इनके आश्रय द्रव्य का संयोग इन्द्रियों के बहिर्द्वार से ही हो सकता है। वहाँ से वह द्रव्य मन्त्रिक के अन्दर स्थित ज्ञानकेन्द्र तक नहीं जा सकता है नहीं अपने आश्रय द्रव्य को छोड़कर शब्दादि गुण पदार्थ इन्द्रिय के बहिर्द्वार से ज्ञानकेन्द्र तक जा सकते हैं, क्योंकि गुण में गतिरूप क्रिया नहीं हो सकती है। बिना गति के एक स्थान से दूसरे स्थान तक जाना असम्भव है। इस प्रश्न के उत्तर में आधुनिक विद्वान् कहते हैं कि इन्द्रिय के बहिर्द्वार में विषयाधार द्रव्य का संयोग होने पर एक अनुभूति (सेन्सेशन) इन्द्रिय केन्द्र तक चला जाता है। यह उत्तर ठीक नहीं है। क्योंकि अनुभूति तो ज्ञान है। उसकी उत्पत्ति तब हो सकती है जब विषय इन्द्रियकेन्द्र तक पहुँच जावे। यदि इन्द्रिय के बहिर्द्वार में ही अनुभूति हो जावे तो इन्द्रिय केन्द्रतक उसका जाना निरर्थक है। दूसरी बात यह है कि—अनुभूति भी तो आत्मा का विशेष गुण बुद्धि ही है। इसमें भी गति नहीं हो सकती है। इसीसे अनुभूति जानी है ऐसा कहना भ्रम है। श्रीमान् चरकजी ने शरीर वायु को “इन्द्रियार्थानामभिबोधा” (च सु. अ १२) अर्थात् सब इन्द्रियार्थ को वहन करनेवाला बताया है। वहाँ भी प्रश्न उठता है कि वायु तो केवल अपने गुण स्पर्श को ही वहन कर सकता है शेष शब्द, रूप, रस और गन्ध अपने अपने आश्रय को छोड़कर वायुमें आ नहीं सकते, क्योंकि गुण में गति नहीं है। बिना

गति के गुणों का अपने अपने आकार को छोड़कर वायु में जाना असम्भव है। फिर वायु सभी इन्द्रियार्थ का “अभिबोधा” किस प्रकार हो सकता है।

इन शंकाओंके समाधानके लिए चरक जी ने लिखा है कि “तत्रानुमानगम्यानां पञ्चमहाभूतविकारसमुदयात्मकानामपि सत्तामिन्द्रियाणां विशेषतस्तेजश्चक्षुषि, संक्षेत्रे, आपो रसने, प्राणे क्षितिः, स्पर्शनेऽनिलो विशेषेणोपपद्यते। तत्र यद् यदात्मकमिन्द्रियं तत्तदात्मकमेवार्थवानुगृह्णाति तत्त्वभावाद् विभुत्वाच्च (च. सू. अ. ८)” इसका अभिप्राय यह है कि यद्यपि सभी इंद्रिय पांचों महाभूतों की विकार समष्टिसे (अर्थात् वातादि दोषों, और रसादि धातुओंसे) बने हुए हैं, इसलिए प्रत्येक इंद्रियका कार्य भी समान होना चाहिए था, किन्तु ऐसा नहीं होता है; क्योंकि कि चक्षुमें तेज की मात्रा अन्य भूतोंकी मात्रासे अधिक है, इसी प्रकार श्रोत्र में आकाश की मात्रा, रसनमें जल की मात्रा, प्राणमें क्षितिकी मात्रा और स्पर्शेन्द्रियमें वायुकी मात्रा अधिक रहती है। जिस इंद्रियमें जिस भूतकी मात्रा अधिक होती है उस इंद्रियसे उस भूतके विशेष गुणको ही जाना जा सकता है। इसमें दो हेतु हैं (१) तत्त्वभावात् (२) विभुत्वात्। यहां योगदर्शनकी एक बातपर ध्यान देना है। योगदर्शनमें लिखा है कि—“वृत्तियुक्तं इंद्रियसे विषय ज्ञान होता है।” निद्रा या समाधिमें जब इंद्रियवृत्ति बन्द हो जाती है तब इंद्रियसे विषयका सन्निकर्ष होने पर भी विषयका प्रत्यक्ष नहीं हो सकता। इस इंद्रियवृत्तिका रहस्य यह है कि “प्रत्येक इंद्रियसे उसके उपादानांश बाहरकी ओर निकलते रहते हैं इसी को इंद्रियवृत्ति कहते हैं। इसे इस प्रकार समझना चाहिए कि मस्तिष्कके अन्दर दृष्टि-केन्द्रसे आरम्भ कर चक्षुके बहिर्द्वार तक एक यन्त्रभी चक्षुरिन्द्रिय कहते हैं। बाहर निकलते हुए चक्षु के उपादान (पाँचों भूत) जहाँ बाहरके दृश्यवस्तुकी रश्मिधारा पड़ती है, वहाँ तक वातसूत्रों की सहायतासे आजाते हैं। इनके अन्दर तेज महाभूत, जिसमें तेज भूत की प्रधानता है, रश्मिधाराके आकारमें परिवर्तित हो जाता है; क्योंकि तेज महाभूत ही तेज महाभूत के गुणको ले सकता है (तत्त्वभावात्) समान गुण वाला होनेके कारण चक्षुके उपादानमें से तेज महाभूत दृश्यवस्तुके रूपको लेकर ऐसा तद्रूप बन जाता है। उसी समय इन्द्रियार्थका अभिबोधा वायु चक्षुके उपादानमें से जो बाहर निकल रहा था उसे प्रतिलोम गति उत्पन्नकर ज्ञान केन्द्र तक ले जाता है। इस प्रकार दृश्य वस्तुका ही अतिसूक्ष्म अंक इंद्रियोपदानके साथ ज्ञान केन्द्र तक जाकर प्रत्यक्ष ज्ञान उत्पन्न करा देता है। फिर प्रश्न रह जाता है कि चक्षुके उपादान पाँचों महाभूत यदि बाहर निकलते हैं तो केवल तेज ही अपने गुण ‘रूप’ को ले सकता है शेष चारों महाभूत अपने अपने गुण को क्यों नहीं ले जा सकते? इसका समाधान है—“विभुत्वात्” अर्थात् बाह्य विषयके साथ मिलकर इंद्रियके उपादानमें जो महाभूत प्रधान है उसमें से ग्रहण योग्य विमुख अर्थात् प्रत्यक्ष योग्य महत् परिमाण उत्पन्न होता है। इसलिये उसके गुण का प्रत्यक्ष होता है। शेष महाभूतों के गुण सन्निरुद्ध विषय से मिलकर भी प्रत्यक्ष योग्य विमुख को प्राप्त नहीं करते हैं। इस लिए उनके गुणों का प्रत्यक्ष उस इंद्रिय से नहीं हो सकता। चक्षु के लिए जिस प्रकार वर्णन किया गया है सभी इंद्रियों के लिए इसी प्रकार समझना चाहिए।

इस प्रकार से इंद्रिय “विषय देश में जाकर विषयका परिच्छेद करता है” यह बात सभी इन्द्रियों के लिए लागू होती है। केवल विषयदेश का अर्थ होगा कि—जिस स्थान में विषय के साथ इंद्रिय का सन्निकर्ष हुआ है वह देश शरीर में ही है शरीर के बाहर नहीं।

इंद्रिय केन्द्र से निकलता हुआ इंद्रियोपादान यदि रोगशक्ति द्वारा या योगशक्ति द्वारा प्रतिहत होकर उलटा ज्ञान केन्द्र तक जाता है तो विषय सन्निकर्ष बिना ही रूप का दर्शन होता है। शब्द, रस, गन्ध और स्पर्श का भी इसी प्रकार ज्ञान होता है। विद्युत धारा द्वारा इंद्रियों को उत्तेजित करने पर भी रूपादि का ज्ञान होता है। चक्षु के द्वार दृष्टाकर बन्द करने के बाद उज्ज्वल रूप दिखाई देता है। कर्ण द्वार को अच्छी तरह से बन्द करने से हृदय गति के शब्द के अतिरिक्त दूरस्थवंशीध्वनिवत् शब्द प्रतीत होता है। रसना से परिश्रुत जल से जो द्रव्य जिह्वा पर घुलता है, उसके ही रस का अनुभव होता है। इस प्रकार इंद्रियोपादान का बाहर-निकलना सिद्ध होता है। बाहर निकलने से इंद्रियोपादान के जितने अंश का अपघन होता है, प्रतिदिन के भोजन से उसकी पुष्टि होती है। इस बात को चरकजीने स्पष्ट लिखा है कि "अन्नमिष्टं-क्षुपहतमिष्टैर्गन्धादिभिः पृथक् । देहे प्रीणातीन्द्रियायान् प्राणादीनीन्द्रियाणि च ॥ (च. चि. अ. १५)।

उपवास से वायु यदता है जो इन्द्रियायोंका अभिशोभा है, फिर भी इंद्रियशक्ति घट जाती है और भोजन से फिर से यष्ट जाती है, यह भी अनुभूत सत्य है। अतः सिद्ध हुआ कि प्रत्येक इंद्रिय से उसके उपादान बाहर निकलते रहते हैं। उनमें से जिस इन्द्रिय में जो भूत प्रधान है वही सन्निकृष्ट विषय को इंद्रिय-केन्द्र तक ले जाकर विषय ज्ञान करा देता है। इसलिए ही प्रत्येक इंद्रिय से नियमपूर्वक एक एक विषयक का ही प्रत्यक्ष हो सकता है।

इससे यह भी सिद्ध होता है कि प्रत्येक भूत में एक एक ही इंद्रिय प्राप्य विशेष गुण शब्दादि होते हैं। पांच ही इंद्रियां हैं और उनके पांच ही नियत विषय हैं। ये विषय गुण पदार्थ हैं, ये द्रव्याश्रित हो कर ही रह सकते हैं। इस प्रकार पांच इंद्रियायों के आश्रयस्वरूप और पांच इंद्रियों के प्रधान उपादान पांच ही नियत भूत अनुमान द्वारा सिद्ध होते हैं। यदि पांच से अधिक या अल्पसंख्याक भूत होते तो नियमपूर्वक पांचही इंद्रियां और पांच ही इंद्रियार्थ क्यों हैं? इसका समाधान नहीं होता है। एक ही भूत में अनेक और अव्यवस्थित गुणों की सत्ता मानने से पांच इंद्रियों के और पांच इंद्रियायों के उपादान स्वरूप पंचमहाभूतों का अनुमान नहीं हो सकता है।

तेज भूत है या नहीं

पंचभूत वादी तेज या अग्नि को भी भूत या महाभूत मानते हैं। रूपमात्र या रूपमात्र गुणविशिष्ट परमाणु को अग्निभूत कहते हैं। उससे द्रव्यगुणकादि क्रमसे तथा आकाश और वायु महाभूत के अनुप्रवेश से स्थूल तेज या तेज महाभूत उत्पन्न होता है, फिर इतर महाभूतों से मिलकर पांचभौतिक अग्नि हमारे अनुभव योग्य होता है। स्थूल अग्नि में उष्ण स्पर्श तथा मास्वर शुक्ल रूप होता है। तेज के प्रवृद्ध स्वरूप अग्नि में उष्ण स्पर्श है उसको ताप कहते हैं और भास्वर शुक्ल रूप को आलोक कहते हैं। इस प्रकार से ताप और आलोक के आधार द्रव्य को प्राचीन काल से तेज महाभूत कहते हैं। किन्तु आधुनिक परिभाषा के अनुसार अग्नि द्रव्य ही नहीं है। द्रव्य में गुरुत्व घनत्व आयतन और रूप होना चाहिये। अग्नि में गुरुत्व, घनत्व, और आयतन नहीं है इसलिए इसको द्रव्य नहीं कह सकते।

इस मत में ताप और आलोक भी तेज या अन्य किसी विशेष वस्तु के गुण नहीं हैं किन्तु प्रत्येक द्रव्य में अवस्थित शक्ति (एनर्जी) है। किसी द्रव्य के अवयवों में जब

तीव्र वेग से रासायनिक परिवर्तन आरम्भ होता है उस समय ताप बढ़ता है। उससे भी अधिक तीव्रता के साथ रासायनिक क्रिया होती रहे तो प्रकाश या आलोक उत्पन्न होता है। ताप-आलोक गति और विद्युत् ये चार प्रकार की शक्ति प्रत्येक वस्तु में है। इनमें से एक शक्ति दूसरी शक्ति के रूप में परिवर्तित भी हो सकती है। जिस से नियत परिमाण तापसे नियत परिमाण आलोक, गति या विद्युत् की उत्पत्ति होती है। नियत परिमाण की गति से भी नियत परिमाण ताप, आलोक और विद्युत् की उत्पत्ति होती है। ये सब प्रयोगसिद्ध सिद्धान्त हैं। अतएव पाश्चात्यों का कथन है कि ताप और आलोक के आश्रय तेज नामक द्रव्य की जिसमें गुरुत्व आदि नहीं है, कल्पना करना निरर्थक है।

इस पर भारतीय शास्त्रज्ञों की ओर से यह वस्तुस्थिति है कि—गुरुत्व एक आपेक्षिक गुण है। जो व्यक्ति जितनी सूक्ष्म वस्तु के गुरुत्व को एकांक (यूनिट) मान कर वस्तु को तोलते हैं उससे लघु वस्तु में गुरुत्व है ही नहीं, कह देना भूल है। आधुनिक विद्वान् हाइड्रोजन के अणु (एटम) को एकांक मान कर आपेक्षिक गुरुत्व का हिसाब लगाते हैं। फिर भी इस 'एटम' के घटक एलेक्ट्रॉन के गुरुत्व को छोड़ देते हैं। इससे सिद्ध है कि 'प्रोटान' से सूक्ष्मतर वस्तु को लघु कहना पड़ता है किन्तु एलेक्ट्रॉन या ईथर को एकांक मान कर तोलने का सामर्थ्य हो जाये तो एलेक्ट्रॉन भी गुरुत्व युक्त कहलवेगा। इस प्रकार स्थूल द्रव्य के आपेक्षिक गुण द्वारा द्रव्यत्व होना या न हो ना सिद्ध नहीं होता। जिसमें गुण है उसकी ही द्रव्य कहना पड़ेगा। घनत्व और आयतन भी स्थूल द्रव्य के आपेक्षिक गुण हैं। रूप एक विशेष गुण है जो तेज से ही रहता है। अन्य द्रव्यों में भी तेज के संसर्ग से रूप उत्पन्न होता है।

तेज भी स्थान घेरता है। इसका प्रमाण यह है कि पथर को जलाने से उसके अन्दर अग्नि प्रविष्ट हो जाती है। उस जले हुए पथर में पानी डालें तो पानी तेज से अधिकृत स्थान को लेने के लिए अग्नि को बाहर फेंक देता है। जैसे वायु से भरी बोतल में प्रवेश करता हुआ पानी वायु को निकाल कर ही प्रवेश कर सकता है। इस प्रकार चूने के अन्दर की अग्नि को बाहर निकालकर ही जल उसमें प्रवेश कर सकता है गन्धकाम्ल आदि के अन्दर भी अग्नि है। उसमें प्रवेश करता हुआ पानी भी अग्नि को बाहर फेंक देता है। यह सब प्रत्यक्ष सिद्ध है।

ताप और आलोक को शक्ति मानने पर भी शक्ति का अश्रय द्रव्य मानना पड़ेगा, क्योंकि कि निराश्रय शक्ति न तो रह सकती है न चल सकती है। यदि सभी स्थूल वस्तु को ताप और आलोक का आधार माना जाये तो भी सूर्यलोक से ताप और आलोक को पृथिवी तक आने के लिए एक माध्यम द्रव्य की आवश्यकता है। सूर्य से पृथ्वी तक के मार्ग में न तो पृथिवी, न जल और न वायु माध्यम हो सकता है; क्योंकि कि ये तीन द्रव्य इतनी दूर तक व्याप्त नहीं हैं। यदि ईथर को माध्यम मानना चाहें तो ईथर को भी द्रव्य मानना पड़ेगा जिसमें आयतन, घनत्व और गुरुत्व नहीं है। यदि कहें कि इसमें ये सब सूक्ष्म रूप में हैं तो भी ईथर ताप और आलोक का वाहक नहीं हो सकता, क्योंकि कि जिस रास्ते से ईथर जा सकता है उस रास्ते से ताप और आलोक नहीं जा सकते हैं। यह भी परीक्षित सत्य है; इससे सिद्ध होता है कि ताप और आलोक का आश्रय द्रव्य ईथर से स्थूल है, वही द्रव्य तेज है।

ताप, आलोक, गति और विद्युत् इनमें से किसी एक से तीनों की उत्पत्ति नहीं होती है। समवायी कारण तो द्रव्य ही हो सकते हैं। शक्ति या गुण किसी का समवायी

कारण नहीं हो सकता। वास्तव में एक एक द्रव्यशुद्ध के अन्दर के वायवीय अवयव जब क्रियाशील होते हैं तो गति उत्पन्न होती है। तेजस अवयव क्रियाशील होनेपर ताप और आलोक उत्पन्न होते हैं। दोनों की क्रियाशीलता होनेपर विद्युत् उत्पन्न होती है। कारण व्यापार द्वारा अवयवों में उत्तेजना होती है। एक शक्ति से दूसरी शक्ति की उत्पत्ति नहीं होती।

(प्राचीनोंने सब ही धातु द्रव्यको तेजस माना है। तेजमें गुरुत्व नहीं है - यह भी उनका सिद्धांत है। इससे सिद्ध होता है कि आधुनिक विद्वान् एटममें जिन् एलेक्ट्रॉनको निष्क्रिय या षट् मानते थे (अब जिनको न्यूट्रान कहते हैं) उनको भी गुरुत्व हीन मानते हैं। धातु द्रव्यमें इनकी सरफा चार्ज्ड एलैक्ट्रानसे सबदा अधिक होती है। प्राचीन लोक उनको तेजस मानने थे। इस प्रकार तेजसमें गुरुत्व नहीं मानना और तेजस धातुमें गुरुत्व अधिक होना दोनों ही अविरोध सत्य हो सकता है।)

आकाश धिवेचन

आकाशके सम्बन्धमें प्राचीन दार्शनिकोंका मतभेद चिरकालसे चला आता है। न्याय और वैशेषिक दर्शनमें आकाशको शब्दका समवायी कारण मानते हैं। उनके मत में आकाश नित्य और ध्यापक है। इसमें किसी द्रव्यका आरम्भ नहीं होता है। परमाणुद्रव्यवे द्रव्यशुद्ध और तीन द्रव्यशुद्धसे त्रसरेणु इस क्रमसे स्थूल द्रव्यकी उत्पत्तिको आरम्भ कहते हैं। न्याय वैशेषिक मतमें स्थूल द्रव्यकी उत्पत्तिके लिए आरम्भवादको ही विशेष कर माना गया है। उनके मतमें आकाश व्यापक है। आकाशके परमाणु ही नहीं है। इसलिए आकाशसे किसी द्रव्यका आरम्भ नहीं होता है। शब्द आकाशका ही गुण है। जैसे गन्धग्रहक प्राग्निद्रव्य पार्थिव, रूपग्रहक चक्षुरिन्द्रिय तैजस आदि है उस प्रकार शब्द ग्रहक श्रवणेंद्रिय आकाश ही नहीं माना गया है क्योंकि व्यापक आकाश श्रवणेंद्रियका आरम्भक नहीं हो सकता है। इसलिए कर्ण शत्रुही स्थित आकाशको ही श्रवणेंद्रिय मानते हैं।

कुछ विद्वान् शुन्य, ख आदि आकाशके नाम देकर आकाशको शून्य ही मराने लगे हैं। साध्य मतमें शब्द तन्मात्रसे स्थूल आकाशकी उत्पत्ति मानते हैं। धृतिमें भी परमात्माकी इच्छासे आकाश की उत्पत्ति वर्णित है। मनुसंहितामें भी लिखा है कि "आकाशं जयते तस्मात् तस्य शब्दं गुणं विदुः" इन् प्रमाणों से आकाश की उत्पत्ति प्रमाणित होनपर स्थूल आकाश को नित्य और ध्यापक कहना युक्ति विरुद्ध है। उत्पन्न द्रव्य सर्वव्यापी नहीं हो सकता है। किसी स्थान में जिसका अभाव नहीं है उसको व्यापक कहते हैं। यदि आकाशभूत सर्व व्यापक है तो वायु आदि भूत कहा रहेंगे। आकाश को ही शब्द का समवायी कारण माना जाना है। वह आकाश यदि व्यापक है तो उसमें गति नहीं हो सकेगी। उत्तरदेश म्योऽनुसूल व्यापार को गति कहते हैं। सर्वव्यापक द्रव्य के लिए उत्तरदेश ही नहीं हो सकता, फिर उसके साथ संयोग की सम्भावना ही नहीं है। शब्द गुण है, उसमें गति नहीं हो सकती है। गुण के अधिकरण की गति समझ जाती है। शब्द गुण का अधिकरण आकाश यदि गतिहीन विभु होता तो शब्द एक स्थान से दूसरे स्थान तक नहीं जा सकता था। बोधितरङ्ग न्याय से शब्द से शब्द की उत्पत्ति और क्रम प्रसरण कहा गया है। वहा भी विचार्य यह है कि जब एक परिच्छिन्न वस्तु है। अव्यापक जल में बीच का दृष्टान्त देकर व्यापक आकाश में बीच की कल्पना करना अयौचित्यक है। यदि वायु को शब्द प्रमाण में माध्यम कहना

चाहें तो सैकड़ों में शब्द का दूर और अतिदूर पहुँचना अयम्भव हो जाता है। इन बातों पर दृष्टि रख कर आकाश को व्यापक कहनेवाले भी आकाश को केवल सर्वमूर्त-संयोगी ही मानते हैं। इससे अनुमान होता है कि किसी स्थान में आकाश का अभाव नहीं है। परन्तु यह बात नहीं है। जहाँ नित्य परमाणु हैं उतना स्थान तो आकाश से युक्त अवश्य ही है। फिर भी आकाश की व्यापक कहने का अभिप्राय यह है कि प्रत्येक परमाणु के साथ आकाश का संयोग है। इससे यह भी सिद्ध होता है कि दो परमाणु के संयोग से जहाँ द्रव्य बनता है वहाँ भी दो परमाणु के बीच में आकाश अवश्य रहता है। अतएव दो स्थूल वस्तु के या दो परमाणु के संयोग का अर्थ है “यथासम्भवसंलिप्यम्” क्योंकि दो परमाणुओं के बीच में भी आकाश अवश्य रहेगा। इससे यह भी सिद्ध है कि दो या बहुत द्रव्य के अभिघात से जहाँ शब्द उत्पन्न होता है वहाँ वातव में आकाशावयव में ही अभिघात होता है। दो स्थूल वस्तु आपस में नहीं टकरा सकती, क्योंकि दोनों के बीच में आकाश व्यवधान रूप में रहता है। अतएव अभिहन्यमान दो वस्तु आकाशावयवों में अभिघात उत्पन्न कर शब्दोत्पत्ति के निमित्त कारण बनते हैं और शब्द आकाशावयव में उत्पन्न होता है। इसलिये शब्द का समवायी कारण आकाश ही हो सकता है।

आकाश को केवल शून्य कहा जावे तो आकाश अभाव पदार्थ बन जाता है। भूत नहीं रहता। शून्यस्थान कहा जावे तो दिक् पदार्थ बन जाता है। अतएव रूपरहित वायुसे पूर्णपात्र में जल अथवा पारिष्व वस्तु या जलय वस्तु न हो तो उस पात्रको जैसे शून्य कहते हैं, वैसे ही वायुसे भी सूक्ष्म आकाशसे पूर्ण स्थानको शून्य कहा जाता है ऐसी लोकोक्ति से आकाश शून्य स्वरूप नहीं बन जाता है। गीतामें भगवान् श्रीकृष्णजीने कहा है कि “यथा सर्वगतं सौक्ष्मादाकाशं नोपलिप्यते।” इससे सिद्ध होता है कि आकाश सूक्ष्म वस्तु है। सब ही मूर्त वस्तुसे उसका संयोग होता है। इससे सिद्ध होता है कि - आधुनिक वैज्ञानिक जिनको ईथर कहते हैं वही स्थूल आकाश है। ईथर सर्वभूत संयोगी भी है; शब्दका समवाय कारण भी है। ईथर तरंगद्वारा शब्द शब्द शीघ्र फैल भी सकता है। रूप रमादिशब्दित ईथरसे पूर्ण स्थान शून्य भी मालूम पड़ता है। ईथर की गति कहीं भी नहीं रकती है। इससे गुरुत्व आदि का पता लगाना भी संभव नहीं है। इसकी उत्पत्ति और विनाश भी सृष्टि कालमें नहीं होता है। अतएव ईथरको स्थूल आकाश मानना युक्तियुक्त ही है।

आधुनिक विद्वानों द्वारा आविष्कृत एलिमेंट और एटम मूलतत्त्व है या यौगिक द्रव्य है?

भारतीय दर्शन और आयुर्वेदमें वर्णित भूत, महाभूत और भौतिकके रहस्य को समझनेका ध्यान न कर मृत्तिका, जल, वायु, अग्नि और आकाश नामा स्थूल पांच-भौतिक द्रव्योंको ही शास्त्रवर्णित भूत समझ कर आधुनिक पाश्चात्य विद्वानोंने इनकी परीक्षा कर के देखा है कि पृथिवी अर्थात् मृत्तिकाके अन्दर आक्सीजन, सिलिकन आदि तेज चौदह एलिमेंट मिलते हैं, जलके अन्दर हाइड्रोजन और आक्सीजन ये दो एलिमेंट मिलने हैं। वायुके अन्दर आक्सीजन, नाइट्रोजन आदि मिलते हैं। इसलिये इन तीनोंको मूल द्रव्य नहीं मानकर उन्होंने इन्हें यौगिक द्रव्य माना है। तेज और आकाशमें घनत्व, अपघटन, गुरुत्व आदि द्रव्य धर्म नहीं हैं, अतः इन दोनोंको द्रव्य ही नहीं मानना चाहिये। इस प्रकार से प्राचीन ऋषियों द्वारा वर्णित पांचभौतिक

सिद्धान्त की प्राचीनों को अल्पज्ञता से कल्पित समझ कर सृष्टिका, जल आदिके विश्लेषण से जो एलिमेन्ट उपलब्ध हुए उनको मूल तत्व मान लिया था। जिस घातु का यथाशक्ति विभाग और विश्लेषण करने से विजातीय सार (सम्स्टेन्स) उपलब्ध नहीं हो सक्ता है उसको एलिमेन्ट कहते हैं। इस नियम के अनुसार पृथ्वी, जल और वायु के विश्लेषण और विभाग द्वारा विजातीय सार उपलब्ध होते हैं, किन्तु हाइड्रोजन, आक्सीजन आदि के विश्लेषण या विभाग द्वारा विजातीय सार उपलब्ध नहीं होते हैं, इसलिए इनको एलिमेन्ट कहते हैं।

इस प्रकार (परिभाषा के अनुसार) स्वर्ण, रौप्य, पारा, रेडियम, यूरेनियम आदि घातु और हाइड्रोजन, आक्सीजन, गन्धक, सल्फिया आदि अघातु कुल मिलाकर ८३ एलिमेन्ट का आविष्कार हो चुका है। एलिमेन्ट की परिभाषा दीर्घ काल स्थायी नहीं रही, क्योंकि विद्वानों ने देखा कि रेडियम से अबाधित गति से हाइड्रोजन के अणु निकलते हैं, फिर हाइड्रोजन के तीन अणु मिलकर ट्राइलियम नामक एलिमेन्ट बन जाता है। इधर रेडियम भा प्रमशः शोशक (लेड) घातु में परिणत हो जाता है। और एक विख्यात विद्वान ने आविष्कार किया कि एलिमेन्ट के सर्वापेक्षा सूक्ष्म कण को जिसको परम सूक्ष्म और अविभाज्य समझ का अनुवादकों ने परमाणु कह दिया था वह भी विभाज्य है और प्रत्येक एलिमेन्ट का एटम एलेक्ट्रॉन और प्रोटॉन नामक दो विजातीय कणों से बनता है। इस आविष्कार ने ही सिद्ध कर दिया कि एलिमेन्ट मूल तत्व नहीं है। ये भी यौगिक द्रव्य ही हैं। तेज और आकाश के द्रव्यत्व के विषय में आधुनिकों के आक्षेप का समाधान पहिले किया जा चुका है।

एलेक्ट्रॉन और प्रोटॉन आदि मूल वस्तु हैं या पांचभौतिक द्रव्य है?

आधुनिक विद्वानों ने आविष्कार किया कि प्रत्येक एटम में कुछ एलेक्ट्रॉन और इतने ही प्रोटॉन होते हैं। जैसे आक्सीजन के एटम में १६ इलेक्ट्रॉन और १६ प्रोटॉन होते हैं। इलेक्ट्रॉन में ऋण विद्युत और प्रोटॉन में धन विद्युत होती है। ऋण (नेगेटिव) और धन (पॉजिटिव) दोनों की संख्या और शक्ति बराबर होने के कारण प्रत्येक एटम विद्युत-निरपेक्ष (न्यूट्रल) होता है। एक एटम में जितने प्रोटॉन होते हैं वे सभी एटम के केन्द्र में केन्द्रक (न्यूक्लियस) के रूप में रहते हैं। किन्तु जितने एलेक्ट्रॉन एक एटम में रहते हैं उनमें से कुछ तो केन्द्रक को केन्द्र बनाकर वृत्ताकार में घूमते रहते हैं (इनको चार्ज्ड इलेक्ट्रॉन कहते हैं) और शेष एलेक्ट्रॉन केन्द्रक के साथ बद्ध या निष्क्रियस्थिति में रहते हैं। उनको बद्ध या (बाउण्ड) एलेक्ट्रॉन कहते हैं। एलेक्ट्रॉन में गुरुत्व बहुत कम होता है इसलिये उसको हिसाब में नहीं लिया जाता है। एलेक्ट्रॉन की अपेक्षा प्रोटॉन १७७३ गुणा भारी होता है। हाइड्रोजन के एटम में एक प्रोटॉन और एक एलेक्ट्रॉन होता है। हाइड्रोजन के एटम को एकांक (यूनिट) मानकर जिस एटम में जितने प्रोटॉन होते हैं उस एटम का आणविक गुरुत्व उतना ही माना जाता है। जैसे आक्सीजन के एटम में १६ प्रोटॉन हैं तो उसका आणविक गुरुत्व भी १६ है। गन्धक के एटम में ३२ प्रोटॉन हैं तो उसका आणविक गुरुत्व भी ३२ है। इस प्रकार प्रोटॉन की संख्या से एटम के आणविक गुरुत्व का हिसाब लगाया जाता है। जिस एटम में इन्द्रिय ग्राह्य विशेष गुण क्यों उत्पन्न हुए और नियम पूर्वक एक एक इन्द्रियार्थ को ग्रहण करने वाली पांच ही इन्द्रियाँ क्यों शरीर में होती हैं? केवल रासायनिक मिलन ही गुणोत्पत्ति का कारण होता तो असंख्य रासायनिक मिलन से

सृष्टि काल में किसी भूत या महाभूत से साक्षात् रूप में कुछ उत्पन्न नहीं होता है। सृष्टि के प्रारम्भ में ही भूतों से महाभूत उत्पन्न होकर आपस में मिल जाते हैं। सृष्टि काल में इस तरह आपस में मिलित पाच भूतों से ही भौतिक द्रव्यों की सृष्टि होती है। शरीर भी अनेक भौतिक द्रव्यों की समष्टि से बनता है। इसलिए उसे पंचमहाभूतविकारसमुदायात्मक कहा गया है। किन्तु चेतन (सेन्द्रिय) सृष्टि में पाचों भूतों के अतिरिक्त छठी चेतना धातु (आत्मा) भी मिली रहती है। अतः सामान्य चेतना विहीन जड़ जगत की अपेक्षया यहाँ का भौतिक सगठन भी रचना और क्रिया की दृष्टि से कुछ विशेष प्रकार का होता है। त्रिदोष की उत्पत्ति का मूल वह विशिष्ट सगठन ही है। क्योंकि इसमें सक्रिय रूप से भाग छेलेने वाले तीन ही भूत प्रधान हैं। विभजनादिरूप^१ गति, पाकादि रूप संताप, तथा सश्लेषणादि रूप आलिङ्गन, ये वायु, अग्नि और जल इन्हीं के क्रमशः कार्य हैं। इससे सिद्ध हुआ कि प्रत्येक सचेतन पाचभौतिक द्रव्य में चाहे वह परमाणु (सेल) रूप हो अथवा स्थूल धात्वादि रूप हो, ये त्रिदोष विद्यमान रहते हैं और आयुर्वेद की दृष्टि से इन पाचभौतिक रचनाओं को यदि हम त्रिधात्वात्मक कहें तो भी अन्यथा कथन नहीं होगा।^२ शास्त्रकारों ने इसलिए कहा है कि वात, पित्त, और श्लेष्मा ही देह की उत्पत्ति और स्थिति के कारण हैं^३। शरीरारम्भक शुक्र (पुनीज) और

^१ त चेतनावस्थित वायुर्विजयति (च. शा. अ. ५)

कई आधुनिक विद्वान् वैश्यों ने अपने लेखों में वात, पित्त और कफ को शक्ति या शक्ति रूप लिखा है। परन्तु शक्ति गुण पदार्थ है। शक्ति द्रव्य की आधित करके ही रह सकती है। अतः वात-पित्त-कफ को केवल शक्तिरूप नहीं माना जा सकता। उनके द्वारा ही-गति, प्राप्ति, ज्ञान, विभजन, ताप, पाक, श्लेष (संयोग) आदि संपाद्य सर्व प्रकार की शारीरिक क्रियाएँ होती हैं अतः इनको शक्ति संपन्न द्रव्य कहना ही उचित है। रस रक्त आदि धातु शरीरके घटक हैं परन्तु उनके द्वारा कोई शक्तिमत्ताय कार्य नहीं होता है अतः उनको धातु ही माना जाता है।

^२ शास्त्रों में लिखा है कि आकाश और वायु महाभूत से वात, तेज और जल महाभूत से पित्त, तथा जल और पृथिवी महाभूत से श्लेष्मा उत्पन्न होता है। अर्थात् सचेतन शरीर में वात आकाश और वायु महाभूत का तथा कफ जल और पृथिवी महाभूत का प्रतिनिधि रूप है। (वाय्वाकाशधातुभ्यां वायु आमेय पित्तम्, अग्नि पृथिवीभ्यां श्लेष्मा (अ. सं. सू. अ. २०) यत् द्रव सर मन्द स्निग्ध सृष्टुं पिच्छिल रस दधिर वसा कफ पित्त मूत्र स्वेदादि तदाप्य रतो रमन च। च. शा. अ. ७)

^३ वातपित्तश्लेष्माण एव देहसम्बन्धेनैव, तैरभ्याप्यैरभोमप्योर्ध्वमन्निविष्टे शरीरमिदं धार्य-
तेऽग्नानिव स्थानाभिस्तिष्ठति, अतथ त्रित्यूनादुरेकं। त एव च व्यापका प्रत्ययेनैव।
(सु. सू. अ. २१.)

आर्तव (स्त्रीबीज) जो स्वयं एक संचेतन पांचभौतिक परमाणु (सेल) विशेष है उन में ये त्रिदोष पहले से ही उपस्थित रहते हैं। अतएव कहा गया है कि शरीरारम्भक शुक्र और आर्तव में जिस दोष की मात्रा अधिक होती है उसके अनुसार मनुष्यकी प्रकृति बनती है^१। ये दोष ही शुक्रार्तवसंयोगमें विशेष क्रियाशील होकर विमजन, पक्ति, संश्लेषण आदि क्रियाओं के द्वारा असंख्य भौतिक या त्रिधात्वात्मक शरीरपरमाणुओं का निर्माण करते हैं। जो आगे चल कर स्वभाव या संस्कारानुवृत्ति के कारण भिन्न भिन्न रस रक्तादि धातुओं या अंग-प्रत्यंग-कोष्ठांगों के रूप में व्यवस्थित (परिणत) हो जाते हैं। ये वातादि दोष इन्हीं को अधिष्ठान बनाकर शरीर की भिन्न भिन्न क्रियाओं को करते हैं। इसलिए शरीर की संपूर्ण क्रियाओं को दोष मानकर उन्हीं के नाम से आयुर्वेद में उनका वर्णन किया गया है, अंग विशेष का कार्य मान कर नहीं। कार्य की दृष्टि से अंग विशेषों की शास्त्र में जो उपेक्षा मिलती है उसका एक मात्र कारण यही है। फिर भी आश्रय आदि भेद से होनेवाली क्रियाओं समझाने के लिए दोषों के पंचधा विभाग करके उनके विभिन्न अधिष्ठान भी शास्त्र में वर्णित है।

वात, पित्त और श्लेष्मा का स्वरूप

वात, पित्त और कफ को समझने के लिए दो उपाय हैं (१) एक तो उनके नामों की निरुक्ति से (२) दूसरा उनके गुण और क्रियाओं से, उनका स्वरूप जाना जा सकता है। निरुक्ति से स्वरूप जानने के लिए सुश्रुताचार्य ने लिखा है कि “वा गतिगन्धनयो”, इस धातु से वायु या वात, “तप संतापे”, इस धातु से पित्त और “श्लिप आलिङ्गने”, इस धातु से श्लेष्मा ये तीन संज्ञा बनी हैं^२। इसको इस प्रकार समझना चाहिये—गत्यर्थक “वा” धातु से वायु या वात शब्द बना है। व्याकरण की परिभाषा के अनुसार सब ही गत्यर्थक धातु प्राप्ति के तथा ज्ञानार्थ के भी बोधक हैं। सुतरां शरीर में जिससे गति प्राप्ति और ज्ञान उत्पन्न होता है वह वायु है। “तप संतापे,” इस

^१ शुक्रशोणित संयोगे यो भवेदोष उत्कटः।

प्रकृतिर्जायते तेन। (सु. सू. अ. ४.)

^२ तत्र “वा गति गन्धनयोः” इति धातुः, “तप संतापे”, “श्लिप आलिङ्गने”, एतेषां कृद्धिहितैः प्रत्ययैः वातः, पित्तं, श्लेष्मा इति च रूपाणि भवन्ति। (सु. सू. अ. २१.)

धातु से पित्त शब्द बना है। सुतरां शरीर में सम्यक ताप जिससे उत्पन्न होता है उसको पित्त कहते हैं। “क्षिप आलिङ्गने”, इस धातु से श्लेष्मा शब्द बना है। आलिङ्गन का अर्थ संयोग है। सुतरां शरीरावयव में जिससे संयोग होता है उसको श्लेष्मा कहते हैं।^१

शरीर के सबसे सूक्ष्म अवयव जिनको आयुर्वेद में परमाणुस्वरूप कहा है^२ (ये परमाणु संज्ञक भूत नहीं हैं, किन्तु शरीर के परम अणु सव से सूक्ष्म अवयव हैं) जिनको आधुनिक विद्वान् सेल (कोष) कहते हैं जिनको आयुर्वेदाचार्यों ने भी असंख्येय माना है। उनमें वात, पित्त और कफ ये विद्यमान हैं आधुनिक मत से वे भी सूक्ष्म जीव हैं। वे भी साते पीते हैं। उनमें गति, अवश्यक वस्तु की प्राप्ति (यथास्थान में प्रापण) तथा सजीव होने के कारण ज्ञान भी है, अतएव उनका साधक वायु भी है। कोष में सम्यक ताप न रहने से वे जीवित नहीं रह सकते हैं। ९७ डिग्री से ९८½ डिग्री तक के तापमान में तो कोष स्वस्थ रहते हैं। ९५ डिग्री या उससे कम तथा ११० से अधिक ताप होने से उनकी मृत्यु हो जाती है। कोषों को स्वस्थ रखने के लिए उनमें सम्यक ताप उत्पन्न करने वाला द्रव्य पित्त ही है। कोष में भी बहुत से सूक्ष्म अवयव हैं जिनके मिलने से आवरण, केन्द्रक आदि बनते हैं। उनको मिलाने वाला द्रव्य श्लेष्मा ही है। इस प्रकार सबसे सूक्ष्म अवयव में वातादि तीनों दोषों का अस्तित्व सिद्ध होता है। स्थूल अवयवों में भी सर्वत्र गति, ताप और श्लेषण (संयोग) विद्यमान है, अतः शरीर में वातादि की सत्ता सिद्ध होती है। । , । यहां शंका होती है कि गति-ज्ञान वायु द्वारा होती है यह किस प्रकार माना जावे, प्रत्यक्ष सिद्ध है कि नर्व (नाड़ी) द्वारा गति होती है। शरीर में ताप भी पित्तद्वारा उत्पन्न होना सिद्ध नहीं होता है, क्योंकि शरीर के अन्दर नानाविध रासायनिक क्रिया द्वारा ही ताप उत्पन्न होता है। अंगों का संश्लेषण भी सौत्रिक तन्तुसूत्र, पेशी, स्नायु आदि भिन्न भिन्न वस्तु द्वारा होता है, फिर वात पित्त कफ को किस प्रकार नाना सकने हैं? वातादि दोषों का

^१ श्लेष्मा का पर्याय नाम कफ भी है। टमकी निर्दिष्ट “केन-बलेन, पलति-निपद्यते इति कफः” अर्थात् जो जलसे उत्पन्न होता है उसको कफ कहते हैं यह है। इससे कफ का शरीर में जलके प्रतिनिधित्व के रूपमें रहना सिद्ध होता है।

^२ शरीरावयवास्तु परमाणुमेवेनासंख्येया भवन्ति, अतिबहुत्वादतिशयोक्त्यादतीन्द्रियवाच। (च. सा. अ. ७)

प्रत्यक्ष भी नहीं होता है। जिनको प्रत्यक्ष होता है उनको छोड़ कर अप्रत्यक्ष द्रव्यों को क्यों माना जाये ?

इसका उत्तर यह है कि—वातसूत्र विद्यमान रहते हुए भी मृत शरीर में तथा वाताहत अंगों में गति नहीं होती तथा वातसूत्र रहित कोष में भी गति होती है, अत एव सूत्र के साथ गति का अन्यव्य व्यतिरेक नहीं है किन्तु आयुर्वेदोक्त वायु के साथ ही गति का अन्यव्य व्यतिरेक है। इससे सिद्ध होता है कि वायु ही गतिकारक है। बहिर्जगत् में विद्युद्वाहक ताम्रसूत्र द्वारा शब्द का देशान्तर गमन होता है। यहा स्थूलदर्शी तो उम ताम्र के तार को ही शब्द का वाहक समझते हैं और विद्युत् द्वारा शीघ्र आये हुए संवाद को भी 'तारा' ही कहते हैं, किन्तु सूक्ष्मदर्शी विद्वान् मानते हैं कि शब्द का वाहक ताम्रसूत्र नहीं है किन्तु विद्युत् ही शब्द का वाहक है। उस विद्युत् को भिन्नभिन्न देश में सीधा पहुँचाने के लिए ही ताम्र सूत्रों का प्रयोग होता है। इस प्रकार शरीर में गति, प्राप्ति और ज्ञान वायुद्वारा होते हैं। यह तो सूक्ष्मदर्शी विद्वान् ही समझते हैं। स्थूलदर्शी केवल उस वायु के वाहक सूत्रों को प्रत्यक्ष करके, वायु को समझाने में अयमर्थ होकर वातसूत्रों को ही गति, प्राप्ति और ज्ञान का साधक कह कर अपने मन का परिचय देते हैं। जैसे विद्युत् का तार कट जाने से विद्युत् की गति बन्द हो जाती है इसी प्रकार वातसूत्र कट जाने से भी वायु की गति बन्द हो जाती है। अब स्थूलदर्शी को उस वायु के समझाने का यत्न करना चाहिए। अपने शाल को ज्ञान का भाव दण्ड मानकर सूक्ष्मदर्शी विशेषज्ञ को भ्रान्त या कल्पनापरायण कहना विद्वत्ता नहीं है।

पित्त में अग्निभूत प्रधान है। इसके द्वारा रूप और ताप उत्पन्न होता है। प्राचीनों का कहना है कि अग्नि ही पित्त में रह कर अपना कार्य करता है^१। पित्त से ही उष्ण उत्पन्न होता है और पित्त से ही पाक होता है। रासायनिक क्रिया कुछ अलौकिक वस्तु नहीं है। जिस क्रिया द्वारा कारण के व्यक्त गुण कार्य में व्यक्त होते हैं उसको साधारणतया भौतिकमिलन कहते हैं, और जिस क्रिया द्वारा कारण के अव्यक्त गुण भी कार्य में व्यक्त होते हैं उसको रासायनिक मिलन कहते हैं। रासायनिक मिलन द्वारा अलीक पदार्थों की उत्पत्ति नहीं हो सकती। ऐसा हो सकता तो कार्य कारण व्यवस्था ही नहीं

^१ अग्निरेव शरीरे पित्तान्तर्गतं कुपिताइपित्तं शुभाशुभानि करोति। (च सू १२।)

रहती। आधुनिक विद्वान् जिसको रासायनिक मिलन कहते हैं प्राचीन विद्वान् उसको पाक कहते हैं। शरीर में पाकक्रिया केवल पित्त द्वारा ही होती है। उस पाक क्रिया के लिए ताप की आवश्यकता होती है। अत एव “रासायनिक क्रिया द्वारा ताप की उत्पत्ति होती है” यह कहना भ्रम मूलक है। वास्तव में पित्त द्वारा ताप की उत्पत्ति होती है और उस ताप द्वारा पाकक्रिया (रासायनिक परिवर्तन) होती है। इस रहस्य को न समझनेवाले रासायनिक मिलन द्वारा ताप की उत्पत्ति समझते हुए भ्रम में पड़ते हैं।

स्थूलदर्शी जिन वस्तुओं को संश्लेषण या संयोग का साधन मानते हैं, उन स्थूल वस्तुओं का निर्माण भी बिना संश्लेषण के नहीं हो सकता। एक लकड़ी को दूसरी लकड़ी के साथ मिलानेवाली कील को स्थूल दर्शी भी देख सकते हैं, किन्तु लकड़ी के प्रत्येक सूक्ष्म कण को परस्पर मिलाकर कठिनलकड़ी में परिणत करनेवाला गोंद (निर्यास) जैसे सूक्ष्म द्रव्य को स्थूलदर्शी नहीं देख सकते हैं उसको तो प्रज्ञा के नेत्र से ही देखा जा सकता है। इस प्रकार स्थूल अङ्गों को जोड़नेवाली स्थूल वस्तु को देखनेवाले यदि शरीर में सूक्ष्माति-सूक्ष्मवस्तु को जोड़नेवाले द्रव्य को न देख सकें तो यह अपराध उन सूक्ष्मदर्शी का नहीं है जिन्होंने उस वस्तुका प्रत्यक्ष करके स्वरूपगुणधर्मादि का वर्णन किया है।

वात, पित्त और कफ इनके लिए अवस्था विशेष से धातु दोष और मल इन तीन संज्ञाओं का व्यवहार किया जाता है। “धातु” शब्द का अर्थ साम्यावस्था प्राकृतावस्था में शरीर को धारण करनेवाले (धारणात् धानव.), ‘दोष’ शब्द का अर्थ विकृत (वृद्ध या क्षीण) अवस्था में रस रक्तादि धातुओं, (और तद्वारा) शरीरावयवों को दूषित करने वाले (दूषणात् दोषा) तथा ‘मल’ शब्द का अर्थ “प्रदुष्टावस्था” में अपने प्राकृत बलों से च्युत (शक्तिहीन) होने से “त्याज्य” ऐसा होता है। वात, पित्त और कफ अपनी प्राकृतावस्था में शरीर का किस प्रकार धारण करते हैं यह उनकी निरुक्ति तथा आयुर्वेद में लिखे हुए उनके प्राकृत कर्मों को पढ़ने से स्पष्ट होता है। ये जब काल (कतु), इन्द्रियार्थ और कायिक, वाचिक, मानसिक कर्मों के हीन, मिथ्या और अति-योग से वृद्ध या क्षीण होने हैं तब रक्तादि दुष्य और तद्वारा शरीरावयवों को दूषित करके नानाविध रोगों को उत्पन्न करते हैं। अतः विकृतावस्था में उनकी दोष संज्ञा सार्थक ही है। ये जब प्रदुष्ट होकर अपने प्राकृत कर्मों के सम्पादन

में असमर्थ (निकम्मे) हो जाने पर विष्ठा-मूत्रादि की तरह त्याज्य (वमनादि के द्वारा बाहर निकालने के योग्य) हो जाते हैं; अतः उस अवस्था में उनके लिए "मल" शब्द का प्रयोग उचित ही है। अतः उनका प्रयोग प्राधान्याद् व्यपदेशा भवन्ति। प्रधान गुण, कर्मों के अनुसार किसी पदार्थ का नामी रखा जाता है। इस नियमानुसार वात, पित्त, कफ में धारकत्व, दूषकत्व और त्याज्यत्व (निर्हार्यत्व) इन तीनों धर्मों का अवस्था विशेष में प्राधान्य देखने में आता है। अतः उनके लिए, अवस्थाविशेष में धातु, दोष और मल ये तीनों संज्ञाओं से शाक्तमें उनका उल्लेख किया गया है। रस, रक्तादि धातुओं में देह धारकत्व कर्म की प्रधानता देखी जाती है, यद्यपि उनकी वृद्धि और क्षय से भी व्याधियां होती हैं, तथापि उनमें धारकत्व गुण प्रधान है और क्षीण या वृद्ध होने पर भी ये अन्य धातुओं को दूषित नहीं कर सकते अतः रस, रक्त आदि का 'धातु' संज्ञा से ही व्यवहार होता है। विष्ठा मूत्र आदि में भी कुछ देहधारकत्व धर्म है और उनकी क्षय-वृद्धि से होनेवाली व्याधियां भी शास्त्रों में वर्णित हैं, तथापि ये किट्ट रूप, निस्सार और त्याज्य होने से उनका 'मल' संज्ञा से निर्देश किया गया है।

प्राकृत वात के शरीर में होने वाले कार्य

उत्साह उच्छ्वास और निःश्वास (श्वास लेना और छोड़ना), चेष्टा (स्वामाविक-अविकृत शारीरिक क्रियाएं) सम परिमाण में रसादि पोषक धातुओं का पोष्य धातुओं में ले जाना (पहुंचाना), मूत्र-पुरिष-स्वेदादि त्याज्य पदार्थों का योग्य काल और प्रमाण में शरीर के बाहर निकालना, (च. सू. अ. १९.) मनकी विषय ग्रहण में प्रवृत्त कराना, मन का (मानसिक व्यापारों का) नियमन करना, सर्व इंद्रियों—ज्ञानेन्द्रियों को अपने अपने विषयों में प्रवृत्त कराना सर्व इंद्रियों द्वारा ग्रहण किए हुए विषयों को ज्ञान केन्द्रतक और उसके

उत्साहोच्छ्वासनिःश्वासचेष्टा धातुगतिः समा । समो मोक्षो गतिमतां वायोः कर्मा-
विकारजम् ॥ (च. सू. अ. १९-४९) । प्रवर्तकश्चेष्टानामुच्चानां, नियन्ता प्रणेता च मनसः
सर्वेन्द्रियाणामुद्योजकः, सर्वेन्द्रियार्थानामभिवोद, सर्वशरीरधातुव्यूहकरः, सन्धानकरः शरीरस्य,
प्रवर्तको वाचः, प्रकृतिः शब्दस्पर्शनयोः, धोत्रस्पर्शनयोः मूलं, हर्षोत्साहयोर्वीनिः समीरणोऽग्निः
स्पर्शनयोः मूलं, हर्षोत्साहयोर्वीनिः, समीरणोऽग्निः, योषसंशोषणः, क्षेप्ताव हिर्मलानां, स्थूलाणुस्रोतसां
भेता, कर्ता गर्भप्रकृतीनाम्, आयुषोऽनुवृत्तिप्रत्ययभूतो भवत्यंकुषितः । (च. सू. अ. १२.)

द्वारा आत्मा को पहुँचाना, शरीर के सर्व धातुओं (और अवयवों) का निर्माण (रचना) करना, शरीर का सधान करना, अग्नि (पाचक रस और अन्य अग्नि कर्म सपाद्य रसों) का प्रेरण (उचित काल और मात्र में स्राव) करना, शरीर में आवश्यकता से अधिक बलेद (आर्द्र पदार्थों) का शोषण करना, स्थूल और सूक्ष्म स्रोतों का निर्माण करना, गर्भ की आकृति का निर्माण करना, हर्ष उत्पन्न करना (च सू अ १२) दोषों (और धातुओं तथा मलों) को यथा स्थान पहुँचाना और उनको समप्रमाणमें रखना, और सर्व शारीरिक क्रियोंकी अनुकूलता में अविष्टत वायु के प्रधान कर्म हैं। वायु स्वयं अमूर्त (विशिष्ट आकृति रहित, निराकार) है तथापि शरीर में, ऊपर लिख हुए उसके कर्म व्यक्त (स्पष्ट) देखने में आते हैं। (सु नि. अ. १)।

वायु वो ऊपर जो प्रधान कर्म लिखे गये हैं उन में शारीरिक और मानसिक दोनों प्रकार के, गति प्राप्ति और ज्ञान साध्य बात कर्मों का उल्लेख हुआ है।

प्राकृत पित्त के कर्म

दर्शन आहार धातु व्रण शोध आदि का पचन, शरीर का स्वाभाविक ताप-उष्मा बनाये रखना, मूत्र और खाने में रचि, तृषा, शरीर की मृदुता, प्रभा, शरीर का वर्ण और कान्ति, मेधा, (बुद्धि), रसका रञ्जन (रक्त बनाना) शौर्य, हर्ष, मनकी प्रसन्नता ये अविष्टत पित्त के स्वाभाविक कर्म हैं^१।

प्राकृत कफ के कर्म

शरीर में स्निग्धता, बन्धन, (अग्नि शिरा स्नायु आदि को बाध रम्बना), स्थिरत्व (शरीर को शिथिल न होने देना, काठिन्य), गौरव (शरीर का स्वाभाविक गुरुत्व बनाये रखना), वृषता (स्त्री गमन सामर्थ्य), बल (कार्यश्रमता और रोग प्रतिरोधक निवारण शक्ति), क्षमा (सहिष्णुता) धैर्य (मन की अचञ्चलता) अलोभ, शरीर की दृढता, उपचय (शरीर की वृद्धि), उत्साह, ज्ञान और बुद्धि (निश्चयात्मक ज्ञान) ये अविष्टत कफ के कार्य हैं^२।

^१ दर्शनं पित्तिरुष्मा च क्षुत्तृष्णा देहमार्दवम् ।

प्रभा प्रसादो मेधा च पित्तकर्माविकारजम् ॥ (च सू अ १८)

^२ स्नेहो बल स्थिरत्व च गौरव वृषता बलम् ।

क्षमा क्षुतिरत्येवमेव कफकर्माविकारजम् ॥ (च सू अ २८)

ऊपर अविकृत वात-पित्त और श्लेष्मा के जो कर्म संक्षेप में बताये गये हैं उनमें उनके शारीरिक और मानसिक दोनों प्रकार के कर्मों का समावेश हुआ है। यद्यपि वात, पित्त और कफ सर्व शरीर चर (शरीर के स्थूल सूक्ष्म सब अवयवों में व्यापक) हैं, तथापि शरीरके जिन विशिष्ट स्थानों में उनकी क्रिया और उनसे होनेवाले व्यापि विशेष रूपसे होते हैं, वे स्थान उनके प्रधान-स्थान माने गये हैं। तथा तत्स्थान में होने वाले उनके कर्मों के अनुसार उनके नाम रखते गये हैं।

वायु के पाच भेद—उनके स्थान और तत्स्थानस्थित प्राकृत और विकृत वायु के कर्म

वायु के भेद—प्राण, उदान, समान, व्यान और अपान ये वायु के पाच भेद हैं।

प्राण वायु का स्थान तथा अविकृत और विकृत प्राण वायु के कर्म :—मूर्धा (सिर, मस्तिष्क), उरः (उर स्थान-छाती में रहे हुए फुफ्फुस श्वास नलिका, अन्न नलिका, और हृदय) कण्ठ, जिह्वा मुख और नासिका ये प्राण-वायु के स्थान हैं। थूकना, छींकना, उकार माना, श्वासोच्छ्वास, आहार को आमाशय में पहुँचाना, तथा बुद्धि, हृदय इंद्रिय और मनका धारण करना ये अविकृत प्राणवायु के कार्य हैं। प्राणवायु जब प्रकुपित होता है तब हikka, श्वास, नेत्रादि इंद्रियों का उपघात, पीनस, छर्दित, तृष्णा, आदि रोगों को उत्पन्न करता है।

उदान वायु के स्थान तथा अविकृत और विकृत उदान वायु के कर्म :—नाभि, उरः (छाती), कण्ठ और नासिका ये उदान वायु के स्थान हैं। बोलना, गाना, प्रयत्न, उत्साह, बल, वर्ण, और स्मृति ये उसके कर्म हैं। (विकृत उदान वायु कण्ठ का अवरोध, मनोभ्रंश मन का ठीक तरह कार्य न करना), वमन, अरुचि, पीनस, गलगण्ड तथा जन्तु के उपर होने वाले रोगों को उत्पन्न करता है।

समान वायु के स्थान तथा अविकृत और विकृत समान वायु के कर्म :—स्वेदवाही, दोषवाही और जलवाही स्रोत तथा कोष्ठ, पाचकामि के समीप के स्थान (आमाशय और पक्वाशय)—ये समान वायु के स्थान हैं। समान वायु जठरामि की सहायता करके (पाचक रसों का स्राव कराकर)

आहार का पाचन करता है तथा आहार से सार भाग (अन्नरस) तथा किट्ट (पुरीष और मूत्र) का विभजन (पृथक्करण) करता है। विकृत समान वायुशूल (उदरशूल), गुल्म, ग्रहणी रोग, अग्निमाद्य, और अतिसार आदि रोगों को उत्पन्न करता है।

व्यान वायु के स्थान तथा अविकृत और विकृत व्यान वायु के कर्म:—व्यान वायु का प्रधान स्थान हृदय है। वह हृदय से सर्व शरीर में संचार करनेवाला और रससवहन (रक्ताभिसरण) कर्म करनेवाला है। गति, प्रसारण, आक्षेप उत्क्षेप, निमेष, उन्मेष आदि क्रिया तथा स्वेद का साव (विसर्जन) करनेवाला है। विकृत व्यानवायु सर्व शरीर में होनेवाले ज्वरादि रोगों को उत्पन्न करता है।

अपान वायु के स्थान तथा अविकृत और विकृत अपान वायु के कर्म:—पक्वाशय (अन्न तथा अन्न समीपस्थ मूत्राशय, गर्भाशय, मेदू आदि) अपान वायु के स्थान है। मल, मूत्र, शुक्र, आर्तव और गर्भका निष्कासन करना—यह उसका प्रधान कार्य है। विकृत अपान वायु मूत्राशय के रोग, शुक्ररोग, अर्श, गुदभ्रंश, तथा पक्वाशय के अन्य रोग आदि को उत्पन्न करता है।

प्राकृत (अविकृत धातुरूप) वात पित्त और कफ के शरीर की स्वस्था-वस्था में होनेवाले कार्य, उनके पाच पाच प्रकार, उनके नाम तथा उनके कार्य ऊपर लिखे गये हैं। अब विकृतावस्था में शरीर में उनके जो गुणरूप लक्षण और कर्म देखने में आते हैं जिनके द्वारा यह वात विकार है, पित्त विकार है या श्लेष्म विकार है उसका निर्णय किया जा सकता है। उनका निरूपण चरकाचार्य के शब्दों में नीचे लिखा जाता है।

ऊपर जो अशीति प्रकार के वातनानात्मज रोग कहे गए हैं उन में तथा अन्य ऊपर न लिखे हुए वात विकारों में ये (आगे लिखे हुए) सहज सिद्ध (अन्य—पित्त या कफ के सम्बन्ध के बिना उत्पन्न) आत्मरूप (वायुके अपने लक्षण) और (पित्त या कफ के संबंध के बिना उत्पन्न) कर्म होने हैं, उन सबमें या उनमें से कुछ लक्षण और कर्मों को देखकर कुशल वैध यह वात रोग ही है ऐसा निश्चय कर सकते हैं। रौक्ष्य (रूक्षता), शीत्य, लापव, बेशय, गति, अमूर्तत्व और अनवस्थितत्व ये वायु के गुणरूप लक्षण हैं। वायु इन गुणरूप लक्षणवाला होनेसे शरीर के तत्त अवयवों में स्थित वायु के ये ये कर्म होते हैं; जैसे—संस (अपने स्थान से किंचित् चलित होना) भ्रश (दूर जाना, दूर

जाना), व्यास (विस्तार), संग (रुकावट), मेद अवसाद, हर्ष (रोमहर्ष) तृषा, कंप, वर्त (वर्तुलीकरण) चलन, सूचीवेधवत् वेदना, कथा, चेष्टा, खरत्व, कठिनता, पोलापन, अरुण वर्ण, मुखका कपाय और विरस (वे स्वाद) होना, सूखना, शूल, सुन्नता, संकोच, स्तब्धता, खंजता (लंगहापन) आदि वायु के कर्म हैं। जहां ये लक्षण देखने में आवे, वहां यह वातविकार है ऐसा निश्चय करना चाहिये।

इसी प्रकार पित्त के उष्णता, तीक्ष्णता, द्रवत्व, ईषत् स्निग्धता, श्वेत और अरुण छोड़ कर अन्य वर्ण, कच्चे मत्स्यमांस के समानगंध, कटु और अम्ल रस तथा सरस्व दोषान्तर के संबन्ध के बिना उत्पन्न गुणरूप लक्षण हैं। इस प्रकार के पित्त के गुण रूप लक्षण होनेसे शरीर के तत्तत् स्थान में स्थित पित्त के ये कर्म होते हैं। जैसे—दाह, उष्णता, पाक, पसीना आना, बलेद, कोप (सडना) कंझ, स्राव, रक्तवर्णता और अपने गंध और वर्ण की उत्पत्ति ये पित्त के कर्म हैं। इन लक्षण युक्त व्याधि को पित्त विकार ही जानना चाहिये।

इसी प्रकार श्लेष्मा के स्नेह, शैत्य, शुक्लवर्ण, गौरव, मधुरता, स्थिरता, पिच्छिलता, और चिकनापन ये सहज गुणरूप लक्षण हैं। इसलिये शरीर के तत्तत् स्थान में स्थित विकृत श्लेष्मा के ये लक्षण होते हैं, जैसे—श्वेत वर्ण, शैत्य, कण्ठ, स्थिरता, (या काठिन्य), गौरव, स्नेह, सुप्ति (स्पर्शज्ञान, आर्द्रता, उपलेप (गोंद या लुवान से लिप्त के समान) बन्ध, मधुरता, और चिरकारित्व ये कर्म होते हैं। इन कर्म (लक्षणों) से युक्त व्याधि को कफ विकार ही जानना चाहिये।

पित्त के पांच प्रकार

(१) पाचक (२) रंजक (३) साधक (४) आलोचक तथा (५) भ्राजक—ये पांच प्रकार के पित्त हैं।

पाचक पित्त का स्थान और उसके कार्य—आहार पाचक पित्त का प्रधान स्थान आमाशय और—पक्वाशय का मध्य (क्षुद्रान्त्र का उपरि भाग—ग्रहणी—डूओडीनम है। इस स्थान में रहकर वह अदृष्ट हेतुक विशेषों से चतुर्विध (अशीत, लीढ, पीत और खादित) अन्नपान को पकाता है, दोष, रस, मूत्र तथा विष्टा, का पृथक्करण (पृथक्करण योग्य) करता है, और वहां रहकर शेष पित्तस्थानों का अग्नि कर्म से अनुग्रह (बलप्रदान) करता है। इस पित्त को पाचकामि (जठरामि—कायामि) कहते हैं।

वक्तव्य—पाचक रसों का मुख्य स्थान क्षुद्रान्न और उसमें भी उसका प्रथम भाग है। इसको आयुर्वेद में ग्रहणी कहते हैं। (“पृष्ठी पित्तधारा नाम या कला परिकीर्तिता। पक्वामाशयमध्यस्था ग्रहणी सा प्रकीर्तिता ॥” यह पाचकामि का प्रधान स्थान होने से—“प्राधान्याद् व्यपदेशा भवन्ति” इस न्याय से पाचक पित्त का स्थान करके उसका निर्देश किया गया है। आयुर्वेद में रसादि सात धातुओं के सात धात्वग्नि; पंचमहाभूतों के पाच भौतिकामि और तेरहवां कायामि करके तेरह प्रकार के अमि माने गये हैं। आहार का पाक तो आमाशय और पक्वाशय में होता है परन्तु रसादि धातुओं का पाक तो सारे शरीर में होता है और पांचभौतिक द्रव्यों का पाक भी सारे शरीर में होता है; अतः धातुओं के पाक के लिये सप्त धात्वग्नि और पांचभौतिक द्रव्यों के पाक के लिए पांचभौतिकामि होना आवश्यक ही है। इन सबको बल प्रदान करने वाला जठराग्नि (पाचक पित्त) है। पाचकामि की किया ठीक होने पर ही शेष अमियों की किया ठीक रह सकती है। आधुनिक परिभाषा में जिसको रासायनिक परिवर्तन कहते हैं उसी का आयुर्वेद में पाक (या पचन किया) के नाम से निर्देश किया है।

रंजक पित्त का स्थान और उसके कार्य

यकृत और झीहा में जो पित्त रहता है उसको रंजकामि या रंजक पित्त कहते हैं। रंजक पित्त रस को रंजित (रक्त वर्ण) करके रक्त में परिणत करता है।

इस विषय में श्रीधुत डा. भास्कर गोविंद घाणेकर जी ने सुश्रुत की व्याख्या में जो मत प्रदर्शित किया है वह नीचे देते हैं :—

‘उपर्युक्त वर्णन के अनुसार रस और रक्त का संबंध निम्नसमीकरण से प्रदर्शित किया जा सकता है—आप्यरस रंजकद्रव्य रक्त। अणुवीक्षण यंत्र द्वारा रक्त की परीक्षा करने पर रक्त के दो भाग दिखाई देते हैं। (१) तरल भाग, इसको रक्तरस (प्लास्मा) कहते हैं। यह एक हलके पीले रंग का रस होता है। इसमें शरीर पोषक पदार्थ, त्याज्य पदार्थ, आक्सीजन, कार्बन डाइऑक्साइड, खनिज पदार्थ, शरीर रक्षक पदार्थ, मिले हुए रहते हैं। (२) रक्त कण ये कण तीन प्रकार के होते हैं—लाल कण, श्वेत कण और सूक्ष्म कण (प्लेटलेट्स)। इन में लाल कणों की संख्या श्वेत कणों में बहुत अधिक होती

है और इन्हों के कारण रक्त का वर्ण लाल होता है। अलग अलग कर्णों का रंग पीला सा होता है। परंतु जब बहुत से कर्ण इकट्ठे हुए देखे जाते हैं तो रंग लाल दिखाई देता है। ये कर्ण आकार में गोल चपटे निम्नमध्य होते हैं। (इनकी मोटाई $\frac{1}{32}$ इंच होती है) एक घन सहस्रांश मीटर (जो एक वृंद के साठवें अंक के बराबर होता है) रक्त में इनकी संख्या ५४००००० होती है। यह केवल अनुमान है। इसमें प्रकृति वयोमान के अनुसार करोड़ों का फर्क हो सकता है। इन कर्णों के भीतर एक रंग होता है और इसी रंग के कारण ये कर्ण तथा रक्त भी लाल दिखाई देता है। इसको कर्ण रंजक या हीमोग्लोबीन कहते हैं। यह ग्लोबीन (ग्लोबीन) नामक प्रोटीन और हीमाटोबिन नामक रंग-द्रव्य का एक यौगिक है। इसमें कार्बन, हाइड्रोजन, आक्सीजन वायु से रासायनिक प्रीति रखता है और रक्त की शुद्धि करके शरीर का स्वास्थ्य चिरंतन करता है। रंजक द्रव्य की उत्पत्ति—आयुर्वेदिक कल्पना के अनुसार रस का रंजन रंजक पित्त से होता है। रस रंजक पित्त का स्थान यकृत और प्लीहा है—“रंजकं तु यकृतं प्लीहास्तदसं शोणितं भवेत्।” पाश्चात्य परिभाषा की दृष्टि से इसका अर्थ यह है कि रक्तकर्णों की उत्पत्ति यकृत और प्लीहा में हुआ करती है। शरीर कार्य विज्ञान में इस विषय पर बहुत सोच करने के पश्चात् यह निश्चित हुआ है कि जन्मोत्तर मनुष्य के शरीर में लाल कर्णों की उत्पत्ति रक्त मज्जा (रेड मैरो) में होती है। यह रक्तमज्जा विशेष कर कशेरु, उरः-फलक, पर्शुक और कपाल की अस्थि में होती है। यकृत और प्लीहा में रक्त की उत्पत्ति गर्भावस्था के मध्य काल से जन्म के पूर्व एक हुआ करती है। तत्पश्चात् यह कार्य रक्तमज्जा में प्रारंभ होता है, जो जन्म भर जारी रहता है। जन्मोत्तर यदि विशेष आवश्यकता हो तो प्लीहा और यकृत में रक्तोत्पत्ति कार्य फिर हो सकता है।

(In times of emergency the liver and spleen may resume this blood-forming function.—*Wrights Applied Physiology*.)

इसके सिवाय रक्तोत्पत्ति के संबंध में यकृत के एक विशेष कार्य का भी पता चला है। बहुत कुछ खोज करके यह अनुमान किया गया है कि जन्मोत्तर यद्यपि यकृत प्रत्यक्ष रक्तोत्पत्ति में भाग नहीं लेता तथापि रक्तमज्जा को अपने रक्तोत्पत्ति के कार्य में यकृत से उत्तेजना मिलती है, जिससे रक्तकर्णों का नाश

होने पर जो क्षति होती है उसकी पूर्ति आवश्यकता के अनुसार रक्तमज्जा कर सकती है ।

(The fact that the rate of formation of new red cells keeps pace with the rate of their destructions indicates that there must be some stimulus which acts appropriately on the red marrow, we do not know what the nature of this stimulus is but some facts suggest that it may be of a chemical nature and may emanate from the liver—*Starling's Physiology*)

इसी तत्व के अनुसार दुष्ट पाण्डुरोग में आज कल यकृत सेवन का प्रयोग बहुत किया जाता है और उससे लाभ भी बहुत होता है । सुश्रुत में भी रक्त पित्त में यकृत सेवन करने के लिए कहा है—“अतिनिस्तृतरक्तो वा क्षौद्रयुक्तं पित्तेदसृक् । यकृद्वा भक्षयदान्तमाम पित्तममायुतम्” । इस विषय में कुछ शास्त्रों की यह राय है कि केवल उत्तेजना ही नहीं तो पूर्ण प्रगल्भ रक्त कणों के लिये उपयोगी कुछ द्रव्य भी यकृत बनाता है ।

(It (liver) may stimulate the marrow to provide mature red cells or it may provide a constituent which is essential for the maturation of normal red cells

—*Wrights Applied Physiology*)

उपर्युक्त विवरण में यह सिद्ध है कि यकृत और हीहा रस का परिवर्तन रक्त में करने के लिए जरूर कुछ सहयोग देते हैं । परंतु इस परिवर्तन का मुख्य स्थान अस्थियों की रक्त मज्जा है ।

साधक पित्त का स्थान और कर्म

साधक पित्त का स्थान हृदय है । वह बुद्धि (निश्चयात्मक ज्ञान), मेधा (स्मरणशक्ति), अभिमान आदि द्वारा जीवात्मा (पुरुष) के अभिप्रेत मानसिक विषयों का साधन करने वाला है, इसलिए इसको साधकाग्नि (साधकपित्त) कहते हैं । (यत् पित्तं हृदयस्थं तस्मिन् साधकोऽग्निरिति सज्ञा सोऽभिप्रेत-मनोरथसाधनकृदुक्त । (सु. सू. अ. २१) “बुद्धि मेधाभिमानादभिमप्रेतार्थ-साधनात् । साधकं हृदयं पित्तम्” (वा. सू. अ. १२) ।

वक्तव्य—आयुर्वेद में हृदय शब्द हृदय (हार्ट) और मस्तिष्क दोनों अर्थों का बोधक होता है । यहाँ हृदय शब्द से मस्तिष्क लेना उपयुक्त मान्य होता है ।

आलोचक पित्त का स्थान और कार्य

आलोचक पित्त का स्थान नेत्र है। इसका कार्य रूप का ग्रहण करना है। (यद्दृष्ट्वां पित्तं तस्मिन्नालोचकोऽमिरिति संज्ञा; स रूपग्रहणाधिकृतः (सु. सू. अ. २१)। नेत्र गोलक में आभ्यन्तरीय दृष्टिपटल (रेटिना) में रूप ग्रहण का कार्य होता है। रूप के आलोचन करने के कारण रस को आलोचकाग्नि कहते हैं।

भ्राजक पित्त का स्थान और कार्य

भ्राजक पित्त का स्थान त्वचा है। यह त्वचा में रह कर अभ्यंग, अभिषेक (त्वचा के ऊपर तैल, काथ आदि की धारा करना) गवगाह (तैल काथ आदि में समग्र शरीर या शरीरक देश को दूबोये रखना) लेप आदि क्रियाओं में प्रयुक्त द्रव्यों का पचन करना और त्वचा का दीपन करना (त्वचा को अच्छा बनाये रखना और वर्ण का प्रकाशन करना) ये भ्राजक पित्त के कार्य हैं। “यत्तु त्वचि पित्तं तस्मिन् भ्राजकोऽमिरिति संज्ञा, सोऽभ्यङ्गपरिषेकावगाहलेपादीनां क्रियाद्रव्याणां पक्ता, छायाणा च प्रकाशकः।” (सु. सू. अ. २१)।

कफ के पांच प्रकार

(१) क्लेदक (२) अवलम्बक (३) बोधक (४) तर्पक और (५) श्लेपक ये कफ के पांच प्रकार हैं।

क्लेदक कफ का स्थान और कार्य :—क्लेदक श्लेष्मा का प्रधान स्थान आमाशय (आमाशय का ऊर्ध्वमार्ग) है। आमाशय चतुर्विध (अशीत, लीढ, पीत, खादित) आहार का आधार है। आमाशय के क्लेदक श्लेष्मा के जलीय गुणों (स्निग्धता—द्रवता आदि) के कारण आहार प्रकृिन्न (पतला), भिन्नसंघात (जिसकी कठिनता नष्ट हो गयी है ऐसा) और—आसानी से पचने योग्य हो जाता है। आमाशय में आहार की तथा आहार में मिले हुए बोधक और क्लेदक कफ की मधुरता, पिच्छिलता और प्रकृेदिता से मधुर और शीतल कफ उत्पन्न होता है। वह आमाशय स्थित कफ अपने प्रभाव से शरीर के अन्य श्लेष्म स्थानों को (शरीर में स्थित अन्य श्लेष्माओं को) उदक कर्म के द्वारा अनुगृहीत करता है।

यहां आमाशय से मुख से आमाशय के ऊर्ध्व भाग तक का सब स्थान समझना चाहिये। क्योंकि मुख से ही चर्वित अन्न में माधुर्य और प्रकृेदित्व

की उत्पत्ति आरक्त हो जाती है । “तत्रामाशयः पित्ताशयस्योपरिष्ठात् . . . चतुर्विधस्याहारस्याधारः । स च तत्रोदके गुणैराहारः प्रक्लिन्नो भिन्नसंघातः सुख-जरश्च भवति । माधुर्यात् पिच्छिलत्वाच्च प्रक्लेदित्वात्तथैव च । आमाशये संभवति श्लेष्मा मधुरशीतलः ॥ स तत्रस्थ एव स्वशक्त्या शेषाणां श्लेष्मस्थानानां शरीरस्य चोदककर्मणाऽनुग्रहं करोति” ॥ (सु. सू. अ. २१) ।

अवलम्बक कफ स्थान और कार्य—अवलम्बक कफ का स्थान वक्षःस्थल है । वक्षस्थल में रहा हुआ अवलम्बक कफ अपने स्नेह-द्रवत्व-पैच्छिल्य आदि प्राकृत गुणों से त्रिक स्थान (त्रिकस्थानोपलक्षित फुफ्फुस) का तथा अन्नरस के साथ मिलकर हृदय का अवलम्बन करता है (उसको अपने कार्य में सहायता देता है) ।

वाग्भट ने अवलम्बक कफ को अन्य कफों का अवलम्बन करने वाला बताया है ।

बोधक कफ का स्थान और कार्यः—बोधक कफ का स्थान जिह्वा-मूल और कण्ठ है । यहां रहा हुआ बोधक कफ अपने सौम्य गुणों से जिह्वा को रसज्ञान कराने में प्रवृत्त कराता है । यह कफ जिह्वेन्द्रिय को रसों का बोध कराता है इसलिए इसको बोधक कफ कहने हैं ।

तर्पक कफ का स्थान और कार्य—तर्पक कफ का स्थान सिर है । तर्पक कफ सिर में रहकर अपने स्नेहन और संतर्पण गुण से समस्त इन्द्रियों का (इन्द्रियार्थ वाहक ज्ञान तन्तुओं का) तर्पण करता है । यह मस्तिष्क, सुषुम्ना और उनसे निकले हुए ज्ञानतन्तुओं (नाडियों) का तर्पण करता है इसलिये तर्पक कहने हैं । (“शिरस्थः स्नेहसंतर्पणाधिकृतत्वादिन्द्रियाणामात्मवीर्येणानुग्रहं करोति”) (सु. सू. अ. २१) ।

यद्यपि “प्राधान्याद् व्यपदेशा भवन्ति” इस न्यास से नाडी संस्थान (नर्वस सिस्टम) को उसके गति, प्राप्ति और ज्ञान कर्म के प्राधान्य से बात संस्थान कहा जाता है तथापि उसमें साधक पितृद्वारा ऊष्मा न पहुँचे और तर्पक कफ द्वारा उसका स्नेहन और तर्पण न हो तो ज्ञानतन्तु अपना कार्य नहीं कर सकते ।

श्लेष्मक कफ का स्थान और कार्यः—श्लेष्मक कफ का स्थान शरीर की सर्व सन्धियों हैं । श्लेष्मा सन्धियों में रह कर सर्व प्रकार की संधियों का संश्लेष (संयोजन) करता है । “सन्धिस्थन्तु श्लेष्मा सर्वमन्धिमंशेषान् सर्व-सन्ध्यनुग्रहं करोति” । (सु. सू. अ. २१) ।

वात—पित्त—कफ की उत्पत्ति और पोषण

वात-पित्त-कफ ये तीनों पुंवीज और स्त्रीवीज में भी रहते हैं। वहां से ही ये शरीर में आते हैं, शरीर में उनकी कोई नई उत्पत्ति नहीं होती है। अमुक आहार या औषध द्रव्य वातकर है, पित्तकर या कफकर है—इन शब्दों का तात्पर्य यह वायु की, पित्त की या कफ की वृद्धि या प्रकोप करता है इतना ही होता है। शरीर में जितने ही दोष या धातु रूप द्रव्य है उनकी पाक क्रिया और शारीरिक कर्मों के कारण प्रतिक्षण अपचय होता ही रहता है। उसकी पूर्ति प्रधानत आहारद्वारा और कुछ अंश में श्वासद्वारा गृहीत वात वायु तथा त्वचा प्रयुक्त अभ्यङ्ग आदि के द्वारा होती रहती है। आहारादि द्वारा शरीर में प्रविष्ट द्रव्य जब तक पित्त द्वारा परिपक्व होकर रसरूप न बनें तबतक ये शरीर पोषणोपयोगी नहीं बन सकते। रस धातु से ही शरीर के इतर (वात-पित्त कफ-रक्त मांस आदि) धातु अपने पोषणोपयुक्त अंश को ग्रहण करके समानावस्था में रहते हैं। जब उनको पोषण द्रव्य अधिक मिले और धातु उसको ग्रहण कर लें तो उसकी वृद्धि (स्वमान वृद्धि) और यदि पोषणांश कम मिले या शरीर धातु उसको ग्रहण न कर सके तो क्षीयमाण धातु की पूर्ति होने से उसका क्षय होता है। भ्रूणावस्था (गर्भावस्था) में माता के रस धातु से और जन्म के अनन्तर आहारोत्पन्न रस धातु से शरीर का पोषण होता है। अवस्थापाक में, मुक्तमात्रावस्था में उत्पन्न कफ विद्रग्धावस्था में उत्पन्न पित्त तथा पक्वावस्था में उत्पन्न वायु का भी शरीर में कुछ अंश में शोषण होता है। तथापि तीनों अवस्थाओं की समाप्ति के अनन्तर जब रस और मल का पृथक्करण होता है उस समय आहारगत समग्र पोषक भाग रस में शोषित होकर समग्र शरीर में रसाभिसरण (रक्ताभिसरण) द्वारा शरीर के स्थूल सूक्ष्म सब अवयवों में पहुंचता है और शरीर के सब अवयव (वात, पित्त, कफ, रस, रक्त, मांस आदि तथा अन्य शरीर परमाणु, कोष्ठांग, उपधातु आदि) अपने पोषक भाग को उससे ग्रहण करते रहते हैं। अवस्थापाक, निष्ठाक, तथा धातुपाक के समय किट्टांशरूप-मलरूप वात, पित्त, कफ, मूत्र, पुरीष, स्वेद, इन्द्रियाधिष्ठानों के मल आदि मलोंकी उत्पत्ति भी होती है।

३. द्रव्य-गुण-रस-विपाक-वीर्य-प्रभाव विचार

आयुर्वेद में आहार और औषध द्रव्यों की शरीर पर होनेवाली पोषण, वृद्धि, वमन, विरेचन, आदि क्रियाओं का विचार, द्रव्य, गुण, रस, विपाक, वीर्य और प्रभाव इन छ द्वारा किया गया है इन छहों का वर्णन क्रमश नीचे दिया जाता है ।

१. द्रव्य

द्रव्य गुण शास्त्रमें आहार और औषध^१ के रूप में काम में आनेवाले पाचभौतिक पदार्थों को द्रव्य^२ कहते हैं । “द्रव्य” शब्द से “द्रव्यों का विशिष्ट पाचभौतिक सघटन” यह अर्थ भी लिया जाता है । द्रव्य अपने पाचभौतिक सघटन से भी शरीर पर विशिष्ट कार्य करता है^३ । सच आहार और औषध द्रव्य पाच भौतिक होने पर भी जिस द्रव्य में जिस महाभूत की

^१ “आहार” और “औषध” शब्द की व्याख्या आयुर्वेद में इस प्रकार की है । द्रव्य तावदद्विवि । वीर्यप्रधानमौषधद्रव्य, रसप्रधानमाहारद्रव्य च (च सू अ २ श्लोक १७ की व्याख्या में चक्रपाणि दत्त) । अर्थात् औषध और आहार भेद से द्रव्यों के दो भेद होते हैं । जिस द्रव्य के उपयोग से शरीर में क्षीन उष्ण आदि वीर्यसङ्गक गुणों की उत्पत्ति प्रधानतया होती हो (या वमन, विरेचन आदि विशिष्ट कार्य करनेवाला वीर्य सङ्गक सत्व जिस में विद्यमान हो), शरीर के रसादि धातुओं की उत्पत्ति करना जिसका प्रधान कार्य न हो, उसको औषधद्रव्य कहते हैं । जैसे सोडा, पीपल आदि । तथा जो द्रव्य रस प्रधान हो अर्थात् जिस द्रव्य के उपयोग शरीर में रस धातु की उत्पत्ति तथा रस से पुष्ट होने वाले रक्तदि धातुओं का पोषण प्रधानतया होता हो, क्षीत, उष्ण आदि वीर्य सङ्गक गुणों की उत्पत्ति प्रधानतया न होती हो (या वमन विरेचन आदि विशिष्ट कर्म करनेवाला कोई सत्व की प्रधानता जिसमें न हो) उसको अहार द्रव्य कहते हैं । (जैसे—दूध, चावल, गेहूँ इत्यादि ।)

^२ सर्वद्रव्य पाचभौतिकमस्मिन्नर्थे । (च सू अ २६) द्रव्य गुण के प्रकरण में पाँचों महाभूतों के सम्मिश्रण से बने हुए पदार्थोंको द्रव्य कहते हैं । अथवा पांचभूत, आत्मा, मन, बाल और दिशा इनके लिये भी “द्रव्य” शब्द का प्रयोग होता है ।

^३ तद्रव्यमात्मना द्विचत् द्विचिद्विद्येण सेवितम् । द्विचिद्विद्येण चक्षुषा क्षेप हन्ति करोति वा ॥ (मु सू अ ४०) इसकी व्याख्या में उद्धरण न लिखा है कि—तत्तद्रव्यमात्मना पाचिवाप्यतेजसवायस्यावासीयस्वरूपेण । (द्रव्य अपना कुछ कार्य अपने पार्थिव, अप्य, आदि पाचभौतिक स्वरूप (सघटन) से, कुछ बीर्यसे, कुछ रससे और कुछ विपाक से करता है) ।

अधिकता होती है उसके अनुसार द्रव्यों के पार्थिव, आप्य, तैजस, वायव्य और नाभस ऐसे पांच वर्ग बनाये गये हैं^१। इन पार्थिवादि पांच वर्गों गुण-लक्षण और कर्म परिशिष्ट नं. १ में देखें।

आयुर्वेद में द्रव्यों का वर्गीकरण

आयुर्वेद में द्रव्यों का चेतन, अचेतन, पार्थिव-आप्य-तैजस-वायव्य-नाभसरूप पांचभौतिक संघटन, दोषप्रशमन-धातुप्रदूषण स्थस्थवृत्तहितरूप-प्रभाव, जङ्गम-औद्भिद-पार्थिवरूप योनिभेद, आहार-औषधरूप उपयोगभेद, मधुर-अम्ल-लवण-तिक्त-कटु कपायरूप रसभेद, मधुर-अम्ल-कटु-रूप या गुरु-लघुरूप विपाकभेद, गुरु-लघु स्निग्ध-रूक्ष-मृदु-तीक्ष्ण-शीत-उष्ण रूप वीर्यभेद, तथा जीवन-वृंहण लेखन-वमन-विरेचन आदि रूप कर्मभेद (शरीरपर होनेवाली क्रियाएं) इन मुख्यप्रकारों से वर्गीकरण किया गया है^२। उद्भिज, प्राणिज और पार्थिव (खनिज) द्रव्यों का वर्गीकरण अतिसंक्षेप में दिया गया है और उसमें संशोधन की भी आवश्यकता है। अतः आधुनिक विज्ञान की सहायता से उनका विस्तृत वर्गीकरण आयुर्वेद में समाविष्ट करना आवश्यक है। इसी प्रकार शरीरके भिन्न भिन्न अवयवों पर होने वाली क्रियाओं के आधारपर जो आधुनिक द्रव्य गुण विज्ञान में औषधद्रव्यों का वर्गीकरण किया गया है उसको भी आयुर्वेद में समाविष्ट कर लेना आवश्यक है।

• पंच महाभूतों से कार्य द्रव्यों की उत्पत्ति कैसे होती है?

• कार्यद्रव्यों की उत्पत्ति में पृथिवी उनका अधिष्ठान आश्रयभूत है, जल योनि रूप अर्थात् पार्थिव अणुओं को मिलानेवाला (संमिश्रण करनेवाला) है।

^१ तत्र पृथिव्यप्तेजोवाय्वाकाशानां समुदायाद् द्रव्याभिनिवृत्तिः उत्कर्षस्त्वभिव्यञ्जको भवति, इदं पार्थिवम्, इदमाप्यम्, इदं तैजसम्, इदं वायव्यम्, इदमाकाशीयमिति (सु. सू. अ. ४१) अर्थात् पृथ्वी, जल, तेज वायु और आकाश इन पांचों के समुदाय (मिल) से सर्व कार्यद्रव्यों की उत्पत्ति होती है। सब द्रव्य पांचभौतिक होने पर भी पृथ्वी आदि एक एक महाभूत की अधिकता से, यह पार्थिव है, यह आप्य है, यह तैजस है, इत्यादि व्यपदेश व्यवहार में होता है। अर्थात् जिनमें पृथ्वी के गुण-कर्म अधिक हों वे पार्थिव, जिनमें जल के गुण-कर्म अधिक हों वे आप्य, जिनमें तेज के गुण-कर्म अधिक हों वे तैजस, जिनमें वायु के गुण-कर्म अधिक हों वे वायव्य और जिनमें आकाश के गुण-कर्म अधिक हों वे नाभस कहलाते हैं।

^२ इन वर्गीकरणों का विशेष विवेचन वैद्य यादवजी त्रिकमजी आचार्य विरचित द्रव्यगुणविज्ञान नामक ग्रन्थ के पूर्वार्ध में देखें।

अग्नि परिपाक क्रियाद्वारा काठिन्य और रूप उत्पन्न करने वाला है। वायु उनमें (पार्थिव अणुओं में) क्रिया (आकर्षण, ऊर्ध्व अध-तिर्यक् अवयवों का फैलाव आदि) उत्पन्न करनेवाला तथा आकाश पार्थिव अणुओं के बीच में अवकाश दान करनेवाला है। इस प्रकार पाचों महाभूतों के सम्मिश्रण और उपकार से सन प्रकार के कार्य द्रव्यों की स्वरूपोत्पत्ति और न्यूनाधिक भाव से, पाचों महाभूतों के सम्मिश्रण से कार्य द्रव्यों के अनेक भेद होते हैं^१।

पार्थिवादि पाचभौतिक द्रव्यों (कार्यद्रव्यों) के गुण ।

पार्थिव द्रव्य	आप्यद्रव्य	आग्नेय द्रव्य	वायव्य द्रव्य	नाभस द्रव्य
गुरु	द्रव	उष्ण	लघु	मृदु
खर स्पर्शवाला	स्निग्ध	तीक्ष्ण	शीत	लघु
कठिन	शीत	सूक्ष्म	सूक्ष्म	सूक्ष्म
मन्द	मन्द	लघु	खर	क्षुब्ध
स्थिर	मृदु	रूक्ष	विशद	व्ययायी
विशद	पिच्छिल	विशद	सूक्ष्म	विशद
सान्द्र	स्तिमित	रसर	विकासि	विविक्त
स्थूल	खर	ऊर्ध्वगति	व्ययायी	अव्यक्त

स्वभाव वाला

रसवाला

अधोगति

शब्द अधिकता

स्वभाववाला

वाला

गन्ध गुण की	रस गुण की	रूप गुण की	स्पर्श गुण की
अधिकता	अधिकता	अधिकता	अधिकता
वाला	वाला	वाला	वाला

^१ पञ्चभूतात्मक तत्तु क्षमाधिगम्य जायते । अम्युयोन्ममिपवननभसा समवायन ॥ तन्निवृत्ति-विशेषः । (अ १, सू अ १.) भूतो वर्णान्कर्षविशेषात् द्रव्यवैषम्यम् । (र वे सू अ २, १८)

मदन्त नागानुन लिखते हे कि कार्यद्रव्यों में (पाचभौतिक द्रव्यों में) पृथिवी महाभूत से बृंहण (अवयवों का उपाय और सघात काठिन्य), अल् महाभूत से त्रेदन (आर्द्रता) और हादन तेज महाभूत से पचन और प्रकाश, वायुमहाभूत से वर्शन (अवयवों का अपचय) और शीघ्र कारिता तथा आकाश महाभूत से विवरण (छिद्रप्रदान) और मुपिरता (पोलापन) उत्पन्न होता है । बृंहण त्रेदन पचन वर्शन विवरणानि सेम्य सघात-हादन प्रकाश दैर्घ्य-शौचिर्वाणि च ॥ (र वे सू अ २, ४३)

पार्थिवादि पांचभौतिक कार्यद्रव्यों के रस

पार्थिव द्रव्य	आप्य द्रव्य	आग्नेय द्रव्य	वायव्य द्रव्य	नाभस द्रव्य.
ईषत्कपाय	ईषत्कपाय, अम्ल लवण	ईषत् अम्ल, लवण	ईषत् तिक्त	अव्यक्त रस
प्रायः मधुर	प्रायः मधुर	प्रायः कटु	विशेष करके कपाय	

पार्थिवादि पांचभौतिक द्रव्यों (कार्यद्रव्यों) के विपाक

पार्थिव द्रव्य का विपाक	आप्य द्रव्य का विपाक	आग्नेय द्रव्य का विपाक	वायव्य द्रव्य का विपाक	नाभस द्रव्य का विपाक
:	.	.	.	:
गुरु	गुरु	लघु	लघु	लघु

पार्थिवादि पांचभौतिक कार्यद्रव्यों के कर्म.

पार्थिव द्रव्य के कर्म	आप्य द्रव्य के कर्म	आग्नेय द्रव्य के कर्म	वायव्य द्रव्य के कर्म	नाभस द्रव्य के कर्म
बृंहण	क्लेदन	दहन	विरूपण	मार्दव
संघात	स्नेहन	पचन	ग्लपन	सौपिर्य
गौरव	बन्धन	प्रभा	विचारण	लाघव
स्थैर्य	निष्पन्दन	प्रकाश	वैशद्य	विवरण
बल	मार्दव	वर्ण	लाघव	
	प्रह्लादन	दारण	कर्शन	
		तापन	शैध्य	

गुण

गुर्वादि गुण द्रव्य में आश्रित होकर रहते हैं और स्वयं निष्क्रिय होनेसे उनमें कर्तृत्व नहीं होता ; वमन, विरेचनादि कर्मों में गुण उपकरण (साधन) रूप होते हैं, कर्ता द्रव्य ही होता है, जो दूसरों का आश्रय और कर्ता होता है वह कर्म में प्रधान होता है तथा जो अन्याश्रित और उपकरण होता है वह

अप्रधान—गौण होता है, गुर्वादि अन्याश्रित और उपस्करण होने के कारण गुण होने से गुण कहे जाते हैं ।

आयुर्वेद सम्मत गुण

चरक ने शब्द, स्पर्श, रूप, रस, गन्ध, गुरु, लघु, शीत, उष्ण, स्निग्ध, रूक्ष, मन्द, तीक्ष्ण, स्थिर, सर, मृदु, कठिन, विशद, पिच्छिल, श्लक्ष्ण, खर, स्थूल, सूक्ष्म, सान्द्र, द्रव, बुद्धि, इच्छा, द्वेष, सुख, दुःख, प्रयत्न, परत्व, अपरत्व, युक्ति, सख्या, सयोग, विभाग, पृथक्त्व, परिमाण, और अभ्यास ये ४१ गुण लिखे हैं । इन गुणों में से शब्द, स्पर्श, रूप, रस और गन्ध ये आकाशादि एक एक भूत के विशेष गुण होने से उनको इन्द्रियग्राह्य वैशेषिक-गुण कहते हैं । बुद्धि, इच्छा, द्वेष, प्रयत्न, सुख, दुःख ये जीवात्मा के गुण होनेसे उनको आत्मविशेषगुण कहते हैं । परत्व, अपरत्व, युक्ति, सख्या, सयोग, विभाग, पृथक्त्व, परिमाण, सस्कार, और अभ्यास ये दहा गुणमहाभूत, शरीर तथा शरीरतर द्रव्य सब के लिए सामान्य होने से उनको सामान्य गुण कहते हैं । गुरु, लघु, शीत, उष्ण, स्निग्ध, रूक्ष, मन्द, तीक्ष्ण, स्थिर, सर, मृदु, कठिन, विशद, पिच्छिल, श्लक्ष्ण, खर, स्थूल, सूक्ष्म, सान्द्र और द्रव इन बीस गुणों का शरीरारम्भक पचमहाभूत शरीर तथा शरीर पर प्रयुक्त होने वाले आहार और औषध द्रव्यों के साथ विशेष संबध होने से इनको शारीरगुण कहते हैं । द्रव्य गुण शास्त्र में इन बीस शारीर गुणोंका, तथा रूप, रस, गन्ध, स्पर्श, और शब्द इन पाच इन्द्रियार्थों का विशेष रूप से विचार किया गया है^१ ।

वैशेषिकों ने रूप, रस, गन्ध, स्पर्श, सख्या, परिमाण, पृथक्त्व, सयोग, विभाग, परत्व, अपरत्व, बुद्धि, सुख, दुःख, इच्छा, द्वेष, प्रयत्न, गुरुत्व, द्रवत्व,

^१ सार्या गुर्वादयो बुद्धि, प्रयत्नान्ता परादय गुणा गुणा प्रोक्ता । (च सू अ १) तत्रार्था शब्द स्पर्श रूप रस गन्धा, गुर्वादयस्तु गुरु लघु-शीतोष्ण स्निग्ध रूक्ष मन्द तीक्ष्ण स्थिर सर मृदु-कठिन विशद पिच्छिल-श्लक्ष्ण-खर-स्थूल-सूक्ष्म सान्द्र द्रवा विशति ॥ बुद्धि ज्ञानम् । अनेन च स्मृति-चेतना धृत्यद्वारादीना बुद्धिविशेषाणा ग्रहणम् । प्रयत्नान्ता इति—इच्छा द्वेष सुख दुःख प्रयत्न । (च शा अ १) इत्यत्रोक्ता पञ्च । परादय —परापरत्वे युक्तिय सख्या सयोग एव च । विभागश्च पृथक्त्व च परिमाणमथापि च ॥ सस्कारोऽभ्यास इत्येते गुणा प्रोक्ता परादय । (च सू अ २६) इत्यत्रोक्ता ।

स्नेह, संस्कार, अदृष्ट और शब्द ये चौबीस गुण माने हैं^१। ऊपर लिखे हुए गुणों में भौतिक मानसिक और वैद्यकीय सब गुणों का अन्तर्भाव हो जाता है। वैशेषिकों का उद्देश्य लोगों को पदार्थों का ज्ञान करना था। तदनुसार वैशेषिकों ने चौबीस गुण माने हैं और उन गुणों के लक्षण लिखे हैं। परन्तु आयुर्वेदज्ञों का उद्देश्य द्रव्यों के वैद्यकीय गुणों का ज्ञान कराना भी था। अतः उन्होंने नाना द्रव्याश्रित गुणों को-कर्मानुभव बताकर^२ गुरु, लघु आदि गुणों के शरीर पर होने-वाले कर्म लिखे हैं। साथ में किस-किस गुण में किस-किस महाभूत की अधिकता रहती है यह भी बताया है। गुर्वादि गुणों के वैशेषिकोक्त लक्षण भी आयुर्वेदज्ञों को प्रायः सम्मत हैं। गुर्वादि बीस शरीर गुणों का ही द्रव्य गुण शास्त्र में विशेषतया विचार किया गया है अतः क्रमशः उनका वर्णन किया जाता है।

(१) गुरुः—वैशेषिक में जिस गुण के द्वारा किसी वस्तु का स्वाभाविक पतन होता है उसको गुरु कहते हैं^३। इस लक्षण को मानते हुए भी द्रव्य गुण शास्त्र में गुरु पाक द्रव्य को गुरु माना जाता है। महाभूतों में पृथ्वी और जल इन दो में गुरुत्व रहता है अतः कार्य द्रव्यों में पृथ्वी और जल इन दो महाभूतों की अधिकता से गुरु गुण उत्पन्न होता है^४। मूर्त द्रव्यों में जिस प्रमाण में अवयवों (घटक अणुओं) का संघात और संश्लेष न्यून या अधिक होता है उस प्रमाण में उसमें गुरुत्व न्यून या अधिक प्रमाण में होता है। गुरु गुण (वाला द्रव्य) अवसाद (शरीर की ग्लानि) उपलेप (मलों की वृद्धि और चिकनाहट) बल, कफ, तृप्ति तथा शरीर की पुष्टि करने वाला (बृंहण) वातहर और चिर-पाकी है।

^१ गुणाः रूप-रस-गन्ध स्पर्श-संख्या-परिमाण-पृथक्त्व संयोग-विभाग-परत्वापरत्व-बुद्धि-सुख-दुःखेच्छा-द्वेष-प्रयत्नाद्येति कण्ठोक्ताः सप्तदश, चतुष्टयसमुचिताश्च गुरुत्व-द्रव्यत्व-स्नेह-संस्कारा-दृष्ट-शब्दा सप्तत्येवं चतुर्विंशतिः। (प्रज्ञस्तपादभाष्य.)

^२ कर्मभिस्त्वनुनीयन्ते नानाद्रव्याश्रया गुणाः (सु. सू. अ. ४६.)।

^३ गुरुत्वं जलभूम्योः पतनकर्मस्तरणम् (प्रज्ञस्तपादभाष्य)। लोकिक्परिभाषा में जो द्रव्य वायुमण्डल में छोड़े जाने पर नीचे गिरता है उसमें गुरुत्व और इसके विपरीत द्रव्य में लघुत्व माना जाता है।

^४ गौरवं पार्थिवमाप्यं च (र. वै. सू. ३/११६)। सादोपलेपबलकृत् गुरुस्तर्पणबृंहणः॥ (सु. सू. अ. ४६)। गुरु वातहरं पुष्टि बलकृच्चिरपाकि च। (मा. प्र. पृ. सं)। पिण्डीभाषात् गुरुत्वं तु मूर्तरूपेऽभिजायते (आ. शा. त. पृ. १४०)। यस्य द्रव्यस्य बृंहणे शक्तिः स गुरुः। (हे)

(२) लघुः—वैशेषिक में लघु को स्वतंत्र गुण नहीं माना है। गुरुत्व के प्रभाव या कमी को ही लघुत्व कहते हैं। द्रव्यों में तेज, वायु, और आकाश महाभूतों की अधिकता में लघुत्व उत्पन्न होता है। जिस प्रमाण में मूर्त द्रव्यों में अवयवों (घटक अणुओं) का सघात और संश्लेष विरल होता है उस प्रमाण में उसमें गोरव कम और लाघव अधिक होता है। लघु (गुण वाला) द्रव्य उत्साह, स्फूर्ति, मलका क्षय अतृप्ति, दुर्बलता, ओर कृशता लानेवाला, कफघ्न, वातघ्न, परमपश्य, शीघ्र पचनेवाला, व्रणका रोपण करनेवाला और शरीर को हलका करनेवाला है^१।

(३) शीतः—द्रव्यों में जल की अधिकता में शीत गुण उत्पन्न होता है। शीत गुण से मूर्त द्रव्यों के अवयवों में सघात (सयोग घनता) भी उत्पन्न होता है। शीत (गुणवाला) द्रव्य उष्ण पीडित को सुख देनेवाला, शारीरिक सरावों का स्तम्भन करनेवाला तथा मूर्छा, तृषा, खेद और दाह को मिटाने वाला है। शीत गुण कर्मानुमेय और स्पर्शनेन्द्रिय ग्राह्य भी है^२।

(४) उष्णः—उष्ण गुण द्रव्यों में तेज (अग्नि) की अधिकता से उत्पन्न होता है। उष्ण गुण से मूर्त द्रव्यों में कहीं विस्तार (फैलाव) और कहीं सङ्घात भी होता है। उष्ण गुण (वाला द्रव्य) सर (सारक प्रवृत्ति करानेवाला), पाचक (आहार और त्रण को पकानेवाला) तथा मूर्च्छा, तृषा, खेद और दाहको उत्पन्न करने वाला है।

वैशेषिक में शीत और उष्ण इन दोनों गुणों को स्वतन्त्र गुण नहीं माने हैं, किन्तु स्पर्श गुण के भेद माने हैं। शीत और उष्ण ये दो गुण भी लघु और

^१ लाघवमन्यदीयम् (र वै सू ३ ११७)। 'शुचिष्युदकाम्यामन्यस्मात् भूतसमूहाद् वाय्वाकाशमिच्छमणान् भवतीति, तेषां त्रयाणां भूतानां लघुवादिति (भाष्य)। लघुस्त्वन्नि परीतस्याल्लेखनो रोपणस्तथा (सु सू अ ४६)। लघु पथ्य पर प्रोक्त कफघ्न शीघ्रपाकि च (भा प्र)। 'लघुने लघु (हे)। गुरुत्व और लघुत्व ये दो सापेक्ष गुण हैं। एक ही द्रव्य अपने से लघु द्रव्य की अपेक्षा गुरु और अपने से गुरु की अपेक्षा लघु हो सकता है। परंतु द्रव्य गुण शास्त्र में जिस द्रव्य में ऊपर लिखे हुए गुरुत्व के कर्म विद्यमान हैं (हों) उसको गुरु और जिस द्रव्य में लघुत्व के कर्म विद्यमान हों उसको लघु कहा जाता है।

^२ शीतपिच्छलाग्नुगुणभूयिष्ठौ। (सु सू अ ४६) शीतस्निग्धगुरुपिच्छलास्त वाप्या। (र वै ३ ११२) द्रव्याणि शीत गुण बहुलान्याप्यानि (च सू अ ३६) तेषां मृदु शीतोष्णा स्पर्शग्राह्या। (सु सू अ ४२) द्वादन स्तम्भन शीतो मूर्छा तृषा खेद दाहनिव। (सु सू अ ४६) स्तम्भने हिम (हे)

गुरु के समान सापेक्ष गुण हैं। सामान्य व्यवहार में हमारे शरीर की उष्णता से अधिक उष्ण स्पर्श वाले द्रव्य को उष्ण और कम उष्ण स्पर्श वाले द्रव्य को शीत कहा जाता है। द्रव्य गुणशास्त्र में उष्ण और शीत गुण के जो कर्म लिखे हैं उनको देख कर उनका निर्णय किया जाता है। उष्ण गुण कर्मानुमेय और स्पर्शनिन्द्रिय माद्य भी है^१।

(५) स्निग्ध (स्नेह)—स्नेह ये जल का विशेष गुण है। द्रव्यों में जल महाभूत की अधिकता से स्निग्धत्व उत्पन्न होता है। द्रव्यों में स्नेह से अवयवों का संग्रह (संयोजन) और मृदुता उत्पन्न होती है। स्निग्ध (गुणवाला) द्रव्य शरीर में आर्द्रता (क्लिन्नता) उत्पन्न करने वाला, बल और वर्ण को बढ़ाने वाला, कफ कर, वात हर तथा वृष्य है^२।

(६) रूक्ष—द्रव्य में पृथ्वी, वायु और अग्नि महाभूत की अधिकता से रूक्षता उत्पन्न होती है। वैशेषिक में स्नेह के अभाव को ही रूक्ष माना है, उसको स्वतन्त्र गुण नहीं माना है। रूक्ष (गुणवाला) द्रव्य शरीर का शोषण करनेवाला, शरीर में रूक्षता और कठिनता लानेवाला, बल और वर्ण का हास करनेवाला, स्तम्भन, खरत्व, उत्पन्न करनेवाला, कफहर, वातकर और अवृष्य है^३।

(७) मन्दः—पृथ्वी और जल की अधिकता से द्रव्य में मन्द गुण उत्पन्न होता है। मन्द गुणयुक्त द्रव्य मन्दता (देरी) से कार्य करने वाला (चिरकारी), सर्व कार्य में शिथिल और अल्प कार्य करनेवाला तथा शामक होता है^४।

^१ तीक्ष्णोष्णावानेयौ। (सु. सू. अ. ४२.) तेजसमौष्ण्यं तैदृष्यं च। (र. वै. ३-११३.) द्रव्याणि उष्ण . . . गुणबहुलान्याग्नेयानि (च. सू. अ. २६.) तेषां मृदुशीतोष्णाः स्पर्शमाद्याः (सु. सू. अ. ४२.)

^२ स्नेहोऽपां विशेषगुणः संग्रहमृजादिहेतुः। (प्र. पा. भा. गुणप्रथ.) संग्रहः परस्पर-मयुक्तानां सक्त्वादीनां पिण्डीभावप्राप्तिहेतुः संयोगविशेषः। . . . आदि शब्दान्मृदुत्वं च। (न्यायकन्दली)। “स्नेहमार्दवकृत् स्निग्धो बलवर्गकरस्तथा (सु. सू. अ. ४६.) स्निग्धं वातहरं श्लेष्मकारि वृष्यं बलावहम् (भा. प्र.) श्लेदने स्निग्धः। (ह.)।

^३ रौप्यवैशद्ये पार्थिववायव्ये। (र. वै. ३/११४.) द्रव्याणि . . . रूक्ष . . . गुण-बहुलानि आग्नेयानि, वायव्यानि। (च. सू. अ. २६.) रूक्षस्तद्विपरीतः (स्निग्धविपरीतः) स्याद्विशेषात् स्तम्भनः खरः। (सु. सू. अ. ४६.) रूक्षं समीरणकरं परं कफहरं मतम्। (भा. प्र.) शोषणे रूक्षः। (हे.)

^४ मन्दो मात्राकरः स्मृतः। (सु. सू. अ. ४.) मन्दः सकलकार्येषु शिथिलोऽन्वोऽपि कथ्यते। (भा. प्र.) शमने मन्दः। (हे) द्रव्याणि . . . मन्द . . . गुणबहुलानि पार्थिवानि आप्यानि च (च. सू. अ. २६.)

(८) तीक्ष्ण—अग्नि महाभूत की अधिकता से द्रव्य में तीक्ष्ण गुण उत्पन्न होता है। तीक्ष्ण गुण युक्त द्रव्य दाह, पाक और स्राव करनेवाला, पिचकर, कफ घातनाशक, लेखन (व्रण लेखन और शरीर को पतला करने वाला), शोधन और व्यवायी होता है^१।

(९) स्थिर—द्रव्य में पृथ्वी महाभूत की अधिकता से स्थिर गुण उत्पन्न होता है। स्थिर गुणवाला द्रव्य वात और मल (मूत्र स्वेदादि) का स्तम्भन (धारण) करनेवाला और चिरस्थायी (अधिक समय तक कष्ट न होने वाला) होता है^२।

(१०) सरः—द्रव्य में जल महाभूत की प्रधानता से सर गुण उत्पन्न होता है। सर गुणवाला द्रव्य अधोवात और मल की प्रवृत्ति कराने वाला (अनुलोमन) होता है^३।

(११) मृदुः—द्रव्य में आकाश और जल महाभूतों की अधिकतासे मृदु गुण उत्पन्न होता है। मृदु गुण युक्त द्रव्य दाह, पाक और स्राव दूर करने वाला तथा अवयवों को श्लथ (ठाला और कोमल) करनेवाला है^४।

(१२) कठिन—द्रव्य में पृथ्वी महाभूत की अधिकता से कठिन गुण उत्पन्न होता है। कठिन गुण युक्त द्रव्य अवयवों को दृढ करता है^५।

(१३) विशद—द्रव्य में पृथ्वी, वायु, तेज और आकाश महाभूतों की अधिकता से विशद गुण उत्पन्न होता है। विशद गुण पिच्छिलता (लुभाव दारपण) का अभाव हो उसको विशद कहते हैं। विशद गुण युक्त द्रव्य पिच्छिल द्रव्य से विपरीत कर्म करनेवाला तथा विशष करके क्लेद का शोषण और व्रण का रोपण करने वाला है^६।

^१ दाहपाककरस्तीक्ष्ण स्रावण । (सु सू अ ४६) तीक्ष्ण पित्तकर प्रायो लेखन कफघातहृत् । (भा प्र) शोधने तीक्ष्ण । (हे) तैजसमौष्ण्य तैक्ष्ण्य च । (र वै ३ ११३)

^२ स्थिरो वातमलस्तम्भी । (भा प्र) धारणे स्थिर । (हे) द्रव्याणि स्थिर गुणबहुलानि पार्थिवानि । (च सू अ २६)

^३ सरोऽनुलोमन प्रोक्त । (सु सू अ ४६) सरस्तेषां (वातमलानां) प्रवर्तक । (भा प्र) सरं आप्यम् । (सु सू अ ४१) प्रेरणे चल (सर) (हे) ।

^४ मार्द्वमान्तरीक्षमाप्य च । (र वै ३ ११५) मृदुरन्यथा (दाहपाकशमन स्तम्भनश्च) (सु सू अ ४६) श्लथने मृदु (हे)

^५ कठिनत्वं पार्थिवम् । (र वै २, ५८) दृढने कठिन । (हे)

^६ रौक्ष्ण्यैशद्ये पार्थिववायव्ये । (र वै ३ ११२) द्रव्याणि विशद गुण बहुलानि पार्थिवानि, आग्नेयानि, वायव्यानि । (च सू अ २६) विशद आग्नेयम् ।

(१४) पिच्छिलः—द्रव्य में पिच्छिल गुण जल महाभूत की अधिकता से उत्पन्न होता है। पिच्छिल गुण युक्त द्रव्य जीवन, बलकारक, संधान (जोड़ने वाला) कफकरक, वातहर, गुरु, तन्तुज और शरीर में उपलेष करने वाला है। पिच्छिल गुण को भापा में लुआव और पिच्छिल गुण युक्त द्रव्य को लुआवदार कहते हैं।

(१५) श्लक्ष्ण—द्रव्य में श्लक्ष्ण गुण आकाश और तेज की अधिकता से उत्पन्न होता है। श्लक्ष्ण गुण वाले द्रव्य के कर्म पिच्छिल गुण वाले द्रव्य के समान हैं। श्लक्ष्ण गुणवाला द्रव्य घण का रोपण करनेवाला होता है। श्लक्ष्ण गुण कर्मानुमेय और स्पर्शनेन्द्रिय ग्राह्य भी है।

(१६) खर (कर्कश)—द्रव्य में पृथ्वी वायु और तेज इन तीन महाभूतों की अधिकता से खरत्व उत्पन्न होता है। खर गुण युक्त द्रव्य विशद के समान कर्म करने वाला और लेखन (व्रणादि में उभरे हुए मांसादि को छीलनेवाला) है।

(१७) सूक्ष्म—द्रव्य में सूक्ष्म गुण अग्नि, वायु और आकाश महाभूत की अधिकता से उत्पन्न होता है। सूक्ष्म गुण युक्त द्रव्य अपनी सूक्ष्मता के कारण शरीर के सूक्ष्म स्रोतों में भी प्रवेश कर सकता है (जैसे—लवण, तैल आदि)। यहां सूक्ष्म का अर्थ छोटा—वारीक ऐसा नहीं है।

(१८) स्थूल—द्रव्य में पृथ्वी महाभूत की अधिकता से स्थूल गुण

(सु. सू. अ. ४१.) विशदो विपरीतोऽस्मात् (पिच्छिलात्) द्वेदादपणतोपणः । (सु. सू. अ. ४६.) विशदो घणरोपणः । (भा. प्र.) । क्षालने विशदः । (हे.)

१ शीत-स्निग्ध-गुरु-पिच्छिलास्तत्राप्याः । (र. वै. ३-११२.) पिच्छिलो जीवनो बल्युः सन्धानः श्लेष्मलो गुरुः । (भा. प्र.) लेवने पिच्छिलः । (हे.)

२ तेजसं श्लक्ष्णत्वं नाम । (र. वै. २-५२.) द्रव्याणि . . . श्लक्ष्ण . . . गुणबहुला-भ्याकाशात्मकानि । (च. सू. अ. २६.) श्लक्ष्णः पिच्छिलवर्ज्यः । सु. (सू. अ. ४६.) श्लक्ष्णः स्नेह विनाऽपि स्यात्, कठिनोऽपि विरोपणः । (भा. प्र.) रोपणे श्लक्ष्णः । (हे.)

३ कर्कशत्वं वायव्यम् । (र. वै. २-६०.) द्रव्याणि . . . खर . . . गुणबहुलानि पार्थिवानि, वायव्यानि । (च. सू. अ. २६.) ; . . . खर . . . तेजसं, वायवीयम् । (सु. सू. अ. ४१.) लेवने खरः । (हे.)

४ द्रव्याणि . . . सूक्ष्म . . . गुणबहुलानि . . . वायव्यानि . . . आकाशात्मकानि । (च. सू. अ. २६.) . . . सूक्ष्म . . . तेजसम् । (सु. सू. अ. ४६.) सूक्ष्मस्तु सूक्ष्म्यात् सूक्ष्मेऽप्युच्यते, स्वानुप्रासः स्मृतः । (सु. सू. अ. ४६.) वेहस्य सूक्ष्मच्छिद्रेषु विशेषतः सूक्ष्ममुच्यते । (भा. प्र.) विषणे सूक्ष्मः । (हे.)

उत्पन्न होता है। स्थूल गुण युक्त द्रव्य शरीर को स्थूल करनेवाला, स्रोतों में अवरोध उत्पन्न करने वाला और गुरुपाक होता है^१।

(१९) सान्द्र—द्रव्य में सान्द्र गुण पृथ्वी महाभूत की अधिकता से उत्पन्न होता है। सान्द्र गुण युक्त द्रव्य शरीर को स्थूल करनेवाला, स्रोतों का अवरोध करनेवाला, और प्रसादक होता है।^२

(२०) द्रवः—जिस गुण के कारण कोई वस्तु बहती है उसको द्रव कहते हैं। द्रव्य में महाभूत की अधिकता से द्रव गुण उत्पन्न होता है। द्रव गुण युक्त द्रव्य शरीर को क्लिन्न (आर्द्र) करनेवाला और सर्वत्र व्याप्त है।^३

ऊपर लिखे हुए बीस गुणों के अतिरिक्त नीचे लिखे हुए छः गुणों का वर्णन भी आयुर्वेद में पाया जाता है

(१) शुष्कः—शुष्क गुण (वाला द्रव्य) द्रव से विपरीत गुणवाला होता है। द्रव्य में पृथ्वी, वायु और तेज की अधिकता से शुष्क गुण उत्पन्न होता है^४।

(२) आशु—आशु गुण युक्त द्रव्य जलमें डाले हुए तैल बिन्दु जैसे शीघ्र फैल जाता है वैसे शरीर में शीघ्र फैल जाता है। जैसे विष। द्रव्य में वायु महाभूत की अधिकता से आशु गुण उत्पन्न होता है^५।

(३) व्यवायीः—व्यवायी गुण युक्त द्रव्य अपक्वावस्था में ही सर्व शरीर में व्याप्त होकर पीछे परिपाक को प्राप्त होता है। द्रव्य में वायु और आकाश महाभूत की अधिकता से व्यवायी गुण उत्पन्न होता है^६।

^१द्रव्याणि स्थूल . गुणबहुलानि पार्थिवानि । (च सू. अ. २६.) सवरणे स्थूल । (हे) स्थूल स्याद्द्वन्द्वकारक । (सु सू. अ. ४६) स्थूल स्थौल्यकरो देहे स्रोत-सामवरोधकृत् । (भा प्र)

^२द्रव्याणि . सान्द्र . गुणबहुलानि पार्थिवानि । (च सू. अ. २६.) प्रसादने सान्द्र । (हे)

^३द्रवत्वं स्यन्दनकर्मकारणम् । (प्र भा) द्रव्याणि द्रव . गुणबहुलान्याध्यानि । (सु सू. अ. २६) द्रव प्रसलेदन . (सु सू. अ. ४६) द्रव क्लेदकरो व्यापी । (भा. प्र) विलोडने द्रव (हे)

^४शुष्कस्तद्विपरीतक (द्रवविपरीत) । (भा प्र)

^५आशुकारी तथाऽऽशुताद्व्यावत्यम्भसि तैलवत् । (सु सू. अ. ४७) आशुराशुक्रो देहे धावत्यम्भसि तैलवत् । (भा. प्र)

^६व्यवायी चाखिलं देहं व्याप्य याकाय कल्पते । (सु सू. अ. ४६) तत्र द्रव्यं . . . व्यवायी . . . गुणबहुल वायव्यम्, आकाशात्मकं (च) । (सु. अ. २६)

सर गुण की प्रकृषावस्था को व्यवायी कहते हैं। (श्र. वा.)

(४) विकासी :—विकासी गुणवाला द्रव्य अपकावस्था में ही समग्र शरीर में व्याप्त होकर धातु में शैथिल्य उत्पन्न करता है। द्रव्य में वायु महाभूत की अधिकता से विकासी गुण उत्पन्न होता है^१।

तीक्ष्ण गुण की प्रकृषावस्था को विकासी कहते हैं (श्र. वा.)

(५) सुगन्ध :—सुगन्ध गुण वाला द्रव्य सुख देनेवाला, सूक्ष्म, अन्न पर रुचि पर उत्पन्न करनेवाला और मृदु होता है। द्रव्य में वायु महाभूत की अधिकता से सुगन्ध गुण उत्पन्न होता है^२।

(६) दुर्गन्ध :—दुर्गन्ध गुण वाला द्रव्य सुगन्ध से विपरीत गुणवाला तथा हृत्तास (जी भचलाना) और अरुचि उत्पन्न करता है। सुगन्ध और दुर्गन्ध ये दो गन्ध गुण के भेद हैं^३।

रस

रसनेंद्रिय ग्राह्य गुण (रसनेंद्रिय से ग्रहण होनेवाले विषय) को रस कहते हैं^४। रस के ग्रहण (ज्ञात होने) में बोधक कफ की सहायक होता है^५। जब तक रसवाले द्रव्यों के सूक्ष्म अंश बोधक कफ में विलीन नहीं होते तब तक रसनेंद्रिय से रस का ज्ञान नहीं होता। मन का रसग्रहण रूप विषयाभिमुख होना, रसनेंद्रिय का स्वस्थ होना, रसवाले द्रव्यों की यथोचित मात्रा होना और रसवाले द्रव्यांश का बोधक कफ में विलीन होना—इतनी सामग्री एकत्र होने पर ही रस का ज्ञान होता है। यदि मन अन्यविषय में प्रवृत्त हो, रसनेंद्रिय अस्वस्थ हो, रसवाले द्रव्य की मात्र कम हो या बोधक कफ का साव न हो (मुंह बिल्कुल सूखा हो) तो शर्करागत मधुर रस का या सैधव गत लवण रस का ज्ञान नहीं होता।

^१ विकासी विकसमेवं धातुष्वन्धान् विमोक्षयेत्। सु. सू. अ. ४.) द्रव्यं . . . विकासी . . . गुणबहुलं वायव्यम्। (अ. सं. सू. अ. १७.)

^२ सुखानुबन्धी सूक्ष्मश्च सुगन्धी रोचनो मृदुः।

^३ दुर्गन्धो विपरीतोऽस्माद् हृत्तासरुचिकारकः। (श्रु. सू. अ. ४६.)

^४ रसनार्थो रसस्तस्य द्रव्यमापः क्षितिस्तथा। निवृत्तौ च विदोषे च प्रत्ययाः स्वादयस्त्रयः। (च. सू. अ. १.)

^५ बोधको रसनास्थायी। (अ. ह. सू. अ. १.)

रस जल महाभूत का प्रधान गुण है। जल का रस अव्यक्त होता है। पृथ्वी महाभूत के सम्बन्ध से जलमें मधुरादि रस की अभिव्यक्ति होती है। पृथ्वी और जल ये दो महाभूत रस के आधार रूप हैं। रस के मधुरादि भेद होने में पृथ्वी और जल के अतिरिक्त अग्नि, वायु और आकाश भी कारण होते हैं।

रस छः हैं—मधुर, अम्ल, लवण, कटु, तिक्त और कषाय। रस पांचभौतिक होने पर भी सोम (सोम गुण युक्त पृथ्वी और जल) की अधिकता से मधुर, पृथ्वी और अग्नि की अधिकता से अम्ल, जल और अग्नि की अधिकता से लवण, वायु और अग्नि की अधिकता से कटु, वायु और आकाश की अधिकता से तिक्त, तथा वायु और पृथ्वी की अधिकता से कषाय रस उत्पन्न होता है।^१

^१ सौम्या. सत्त्वापोऽन्तरिक्षप्रभवा प्रकृतिशीला लघ्व्यव्यव्याव्यक्तरसाश्च। तास्वन्तरिक्षाद् अश्नमाना भृष्टाश्च पञ्चमहाभूतविकाराः गुणसमन्विता जंगमस्थावरणा भूतानां मूर्तीरभिप्रीणयन्ति, तामु मूर्तिषु बह्मिर्मूर्च्छन्ति रसाः। (अन्तरिक्ष में उत्पन्न दिव्यजल स्वभाव से ही ढण्डा, सौम्य और अव्यक्त रसवाला होता है। यह जल अन्तरिक्ष से गिरता हुआ मध्य में (आकाश में) आकाशस्थ और भूमि पर गिर कर भूमिस्थ पंचमहाभूतविकाररूप आकाश, पवन चंद्र, सूर्य और वायु मण्डल में निरन्तर उड़ने वाले भीम व्रतणुओं के गुणों से समन्वित होकर जंगम और स्थावर मूर्तियों (आकार पदार्थों) को उरपन्न और तृप्त करता है। उन जंगम और स्थावर पदार्थों में छः रस उत्पन्न होते हैं।)

^२ आकाश-पवन-दहन-तोय-भूमिषु यथासत्त्वमेकोत्तरपरिवृद्धाः शब्द-स्पर्श-रूप-रसगन्धाः। परस्परसर्गात्, परस्परानुग्रहात्, परस्परानुप्रवेशाच्च सर्वेषां सात्त्विकमस्ति, उत्कर्षप्रकर्षात् प्रहणम्; तस्मादाप्यो रसः। स खल्वाप्यो रस शेषभूतमसर्गाद्विद्मः। पोढा विभज्यते, तदया-मधुरः, अम्लः, लवण, कटुकः, तिक्तः, कषाय इति। (सु. सू. अ. ४२.) रसः खल्वाप्यः प्रागव्यक्तश्च पङ्कटत्वात् कालस्य महाभूतगुणैरुनातिरिक्तः, संसृष्टो विपमं विदग्धः पोढा पृथग्विवरिण्यते मधुरादिभेदेन। (अ. सं. सू. अ. १२.) ते निर्गच्छन्तेऽनुमानात् वर्धनात् समानजातीयस्य, असमानजातीयस्य क्षणान्तरात्। (र. वै. अ. ४४, ४५.)

आकाश, पवन, अग्नि, जल, और पृथ्वी इन महाभूतों में आकाश में शब्द, वायुमें शब्द और स्पर्श, अग्नि में शब्द, स्पर्श, और रूप, जलमें शब्द, स्पर्श, रूप और रस तथा पृथ्वी में शब्द, स्पर्श, रूप, रस, गन्ध ये गुण रहते हैं। पंचमहाभूतोत्पन्न पांचभौतिक द्रव्यों में महाभूतों के परस्पर ससर्ग, अनुग्रह और अनुप्रवेश से पार्थिवादि सब महाभूत, सब द्रव्यों में पाये जाते हैं। तथापि सब भौतिक द्रव्यों में सब महाभूतों का प्रमाण एकमात्र नहीं होता। किसी का अधिक और किसी का न्यून होता है। जिसमें जिस महाभूत का आधिक्य होता है उसके नाम से उसका पार्थिव, आप्य आदि नाम रखे जाते हैं। रसमें जल महाभूत की अधिकता होने से रस आप्य माना जाता है। जल का रस अव्यक्त होने पर भी शेष चार

∴ विरुद्ध महाभूतों से उत्पन्न (विरुद्ध महाभूतों की अधिकता या) दोष का क्षय और समान महाभूतों से उत्पन्न दोष की वृद्धि को देखकर यह रस अमुक महाभूत की अधिकता से उत्पन्न हुआ है यह अनुमान किया जाता है। जैसे मधुर रस आप्य कफ की वृद्धि और आम्लेय पित्त का क्षय होता है यह देख कर “मधुर रस सोम गुण युक्त पृथ्वी और जल से उत्पन्न होता है” यह अनुमान किया जाता है।

रसों की उत्पत्ति :—भूत गुण विवेचन से सिद्ध हुआ कि जल भूत का गुण रस है। स्थूल जल में भी जो पांचभौतिक होकर भी शुद्ध जल कहलाता है जो जलीय वाष्प में शैत्य लगकर वृष्टि अथवा परिस्फुट जल के रूप में उपलब्ध होता है, अव्यक्त रस ही रहता है। यह वृष्टि जल आकाश से गिरता हुआ तथा मृमि पर गिरकर स्थावर-जड़म वस्तु के अन्दर प्रविष्ट होकर भिन्न-भिन्न भूतों के आधिपत्य से भिन्न भिन्न रूप में परिवर्तित होता है। इस प्रकार स्थावर जड़म वस्तुओं में छः रस उत्पन्न होते हैं। जिसका विवरण निम्न प्रकार है :—

सब ही रस अर्थात् रसका अधिकरण सूक्ष्म कण पांचभौतिक है, फिर भी मधुर रस के आधार शर्कराकण में पृथिवी और जल का भाग अधिक है। आधुनिक विज्ञान भी कहते हैं कि ६ भाग कार्बन के साथ ६ भाग आक्सीजन और १२ भाग हाइड्रोजन मिलकर शर्करा का कण बनता है। ६ भाग आक्सीजन के साथ १२ भाग हाइड्रोजन मिलने से स्थूल जल की बनता है। तथा कार्बन का व्यक्त रूप कोमला आदि को भौतिक विभाग में पार्थिव माना जाता है। सुतरां मधुर रस की उत्पत्ति के लिए प्राचीन मतको आधुनिक विद्वान् भी समर्थन करते हैं।

पृथ्वी और अग्नि के आधिपत्य से अम्ल रस का आधार कण बनता है। प्राचीनों के इस मत को आधुनिक विद्वान् भी प्रकारान्तर से मानते हैं। गन्धक आदि पार्थिव वस्तु के साथ अथवा कार्बन के साथ हाइड्रोजन और आक्सीजन मिल कर अम्ल बनता है, जिसमें हाइड्रोजन और आक्सीजन की मात्रा सर्वदा अधिक रहती है। आक्सीजन अग्नि को उत्तेजित करनेवाला है अतः उसको महाभूतों के कार्य द्रव्यों में न्यूनातिरेक भाव से पाँचों महाभूतों के सम्मिश्रण से रस के मधुगदि छः भेद होते हैं। काल छः कणुओं वाला होने से द्रव्यों में पंचमहाभूतों के सम्मिश्रण में न्यूनाधिक भाव (कमी बेसी) हुआ करता है।

आमेय ही कहना चाहिए । ओक्सीजन के साथ हाइड्रोजन की अल्पमात्रा रहने से भी आमेयांशका ही प्राधान्य रहती है, जलीयांश अभिभूत हो जाता है अत एव “भूम्यमिगुणबाहुल्यादम्ल ” ऐसी प्राचीनोक्ति आधुनिकों की परीक्षा से मिलती है ।

लवण रस के आधार कण के उपादान में जल और अम्ल का प्राधान्य प्राचीन मानते हैं । आधुनिकों का कहना है कि सोडियम और क्लोरीन मिलकर प्रधानतः लवण बनाते हैं । सोडियम और क्लोरीन इनमें से जलीय भाग किसमें अधिक है और आमेय भाग किसमें अधिक है इसका निर्णय करना तो कठिन है किन्तु लवण रस प्रधान द्रव्य जलीय वायु के सम्पर्क से द्रवीभूत हो जाता है । मधुर रस प्रधान भी जलीय वायु के संसर्ग से द्रवीभूत हो जाता है उसमें तो जलीयांश हाइड्रोजन माना जाता है । लवण के उपादान में प्राचीनाचार्यों ने तो जलीयांश को देख लिया । आधुनिक विद्वान् भी जब लवण को द्रवीभूत होने के कारण पर विचार करेंगे तब प्राचीन सिद्धान्त का समादर करना पड़ेगा ।

वायु और अम्ल गुण बाहुल्यसे कटु रस उत्पन्न होता है इस लिए यह वायु और पित्त का वर्धक है यह तो प्रत्यक्ष सिद्ध है । आधुनिक विद्वान् कटु रस को रस ही नहीं मानते हैं उनका कहना है कि यह तो त्वचा पर ज्वलन उत्पादन करनेवाला है । शरीर के किसी भाग की त्वचा पर इसका अनुभव होता है । जहां की त्वचा मुलायम है वहां अधिक मालूम पड़ता है इसलिए रसना पर अधिक प्रभाव डालता है । इस बात को कोई भी चिकित्सक मान नहीं सकते । प्रतिदिन का अनुभव है कि जिस रोगी को कटुरस (मिर्च) खाने को मना किया जाता है वह कटु रस खाने के लिए कितना आवुल होता है, यदि आधुनिकों का कहना सत्य होता तो जिसके लिए मिर्च खाना निषिद्ध है वह शरीर के और किसी नाजुक अङ्ग पर मिर्च लगा कर स्पर्शसुख अनुभव कर लेते । प्रत्येक विवेकशील व्यक्ति कटु रस को रसना में लगाकर तथा अन्य किसी स्थानपर लगाकर स्पष्ट अनुभव कर सकते हैं कि इस में केवल स्पर्शनेन्द्रिय वेद्य गुण ही है या रसना वेद्य गुण भी विद्यमान है ।

वायु और आकाश के बाहुल्य से तिक्त रस की उत्पत्ति बताई गयी है । पृथक् करके आकाश का परीक्षण करना तो सम्भव नहीं है किन्तु तिक्त रस के उपादान में नाइट्रोजन है यह तो आधुनिक विद्वान् भी मानते हैं । स्थूल वायु के १०० भाग में ७६ भाग के करीब रहनेवाला नाइट्रोजन को

वायवीय मानना ही पड़ेगा। अतएव वायु और आकाश बहुल तिक्त है यह सत्य ही है; तिक्त रस से वायु की वृद्धि भी इसका प्रमाण है।

पृथिवी और वायु के बाहुल्य से कषाय रस होता है। प्राचीनों के इस सिद्धान्त को आधुनिक विद्वान् भी मानते हैं। उनका कहना है कि—१२ भाग कार्बन के साथ ९ भाग हाइड्रोजन और ९ भाग ओक्सीजन होता है। कार्बन तो पार्थिव ही है। सब भाग में मिलित हाइड्रोजन और ओक्सीजन में वायवीय रूप ही प्रधान रहते हैं। कषाय रस पृथिवी के संसर्ग से गुरु और वायु के संसर्ग से वायुवर्धक होता है।

कषाय रस भी रसनेन्द्रिय से जाना जाता है अतः इसको रस नहीं मानना मूल है।

क्षार एक क्षरणशील द्रव्य है। यह क्षार अनेकेन्द्रिय तथा अनेक रस युक्त है। अतएव क्षार रस नहीं हैं, द्रव्य ही है। केवल आधुनिक विद्वान् ही क्षार को रस मानने का भ्रम नहीं करते हैं, प्राचीन काल में भी क्षार को रस मानने वाले थे, किन्तु चरक जी ने उनके भ्रम को पूर्वोक्त युक्ति से खण्डन किया था। इस प्रकार क्षारीय रस भी स्वतन्त्र रस नहीं है। प्रत्येक द्रव्य के रस में कुछ न कुछ वैशिष्ट्य तो होता ही है, किन्तु ये सब छः रस के अन्तर्गत ही हैं। रस के विषय में विवादास्पद बातों पर संक्षेप से विचार किया गया है।

रस और अनुरस

सब द्रव्य पांचभौतिक होने से अनेक रसवाले होने हैं। उनमें शुष्क या आर्द्र द्रव्य को जीभ पर रखते ही प्रारम्भ से अन्त तक यह मधुर है, यह आम्ल है, इत्यादि प्रकार से उसका जो रस व्यक्त-स्पष्ट रूप से मालूम होता है, उसको रस कहते हैं। अर्थात् द्रव्य की शुष्कावस्था, आर्द्रावस्था, प्रारम्भावस्था (जिह्वा का संयोग होते ही) और अन्तिमावस्था (खाने के अन्त तक) इन चारों अवस्थाओं में जिसका यह मधुर है, यह आम्ल है, इत्यादि रूपसे स्पष्टतया अनुभव होता हो उसको रस कहते हैं; और जो रस इससे विपरीत हो अर्थात् उक्त चारों अवस्थाओं में स्पष्ट रूप से न मालूम होता हो किन्तु अव्यक्त-अस्पष्ट-रूप से (छायामात्र से) मालूम होता हो, या कार्य देखकर जिसका अनुमान किया जा सकता हो उसको, या अन्त में कुछ स्पष्टरूप से मालूम हो उसको, या जो आर्द्रावस्था में उस द्रव्य में स्पष्टरूप से मालूम होने पर भी वह द्रव्य शुष्क होने

पर उगर्गे यह रस नष्ट जाय और अन्य रस मात्रम होने लगे तो उस (आर्द्र-
व्या ने रस) को अनुरस कहते हैं । इस प्रकार मधुरादि प्रत्येक रस ही
अवस्था भेद से रस या अनुरस संज्ञा को प्राप्त होता है, अनुरस नामका कोई
सातवा रस नहीं है (च. म.) । द्रव्य में जो रस उगर्गे जीभ पर रसने ही तुरत
स्पर्शरूप से मान्य हो, उसको रस कहते हैं तथा जो रस अव्यक्त (कार्यदर्शनानु-
मेय), गुल न्यक्त या अन्त में व्यक्त होता हो उसको अनुरस कहते हैं । (हे)

द्रव्य गत रस का ज्ञान क्या होता है ?

द्रव्य का रसनेन्द्रिय के साथ संयोग होने पर द्रव्यगत मधुरादि रस का
ज्ञान होता है । द्रव्य गत रस का प्रत्यक्ष ज्ञान, द्रव्य का रसनेन्द्रिय (जिह्वा)
के साथ साक्षात् सम्बन्ध होने पर होता है, यह “रस्यते आस्वाद्यते रसनेन य-
स रस.” इस व्युत्पत्ति से तथा “रसनाथो रसः” इस चरकोक्त लक्षण से स्पष्ट
मान्य होता है । परन्तु द्रव्यगत रस की जिह्वापर होनेवाली मधुरादि रूपसे
वेदना के अतिरिक्त द्रव्यगत रस अन्य भी कुछ स्थानिक और कभी कभी
स्थानिक बातनाटियों के अगों द्वारा प्रत्यावर्तन मे भी कार्य करना है, उनका
वर्णन आयुर्वेद में इसप्रकार किया गया है—मधुर रस (वाला द्रव्य) मुख में
जाते ही सारे मुख में व्याप्त होकर मुख को मधुर रस से लिप्त सा कर देता है,
तथा सब इन्द्रियों की प्रसन्नता, शरीर में आल्लास, सुखादि में स्निग्धता, प्रीणन
(वृत्ति), मृदुता और कफ की वृद्धि तथा मूर्छित को संज्ञा प्रदान करता है ।
अम्ल रस (वाला द्रव्य) दन्त हर्द, मुखसाव, शरीर में स्वेद, अन्न पर रुचि,
कण्ठ और छाती (अन्नलिका) में दाह, नेत्र और भौहों का संकोच तथा रोमहर्ष
उत्पन्न करता है । लवण रस (वाला द्रव्य) मुख में जाते ही घुल कर शीघ्र
फैल जाता है तथा क्लेद (आर्द्रता), लालासाव, कण्ठ और कपोल में जलन तथा
उष्णता उत्पन्न करता है । (कटु रस वाला द्रव्य) जीभ पर रसते ही जीभ में
उद्वेग और सूई चुभने की सी वेदना, कण्ठ और कपोल में चिमचिमाहट तथा
अन्न पर रुचि उत्पन्न करता है । तिक्त रस (वाला द्रव्य) जीभ पर रसते ही
जीभ की अन्य रसों के ग्रहण करने की शक्ति का ह्रास करता है, जीभ को
अप्रिय लगता है, मुख को स्वच्छ करता है, मुंह में ठण्डापन लाता है, मुंह
और गले को सुखाता है, तथा गले में खिंचाव सी वेदना, अन्न पर रुचि और
रोमहर्ष उत्पन्न करता है । कषाय रस (वाला द्रव्य) जिह्वा में विशदता,

स्तब्धता और जडता उत्पन्न करता है ; कण्ठ को जकड़ता सा है, मुंह को सुखाता है, हृदय (छाती) में खींचने की सी पीड़ा करता है, मुंह के कफ (लाला) को गाढ़ा करता है, और मुख में भारीपन लाता है ।

रसानां गुण-कर्मणि

	मधुरो रसः	अम्लो रसः	लवणो रसः
जन्मप्रभृति शरीरसात्म्यात्:—	अन्नरुचिकरः	पाचनः	
” रसाभिवर्धनः	अग्निदीपनः	हेदनः	
” रक्ताभिवर्धनः	बृंहणः	दीपनः	
” मासाभिवर्धनः	ऊर्जाकरः	च्यावनः	
” मेदोऽभिवर्धनः	मनोबोधनः	छेदनः	
” मज्जाभिवर्धनः	इन्द्रियदाढ्यकरः	भेदनः	
” ओजोभिवर्धनः	बलवर्धनः	तीक्ष्णः	
” शुक्राभिवर्धनः	वातानुलोमनः	सरः	
आयुष्यः	हृदयतर्पणः	विकासी	
पटिन्द्रियप्रसादनः	आस्यस्त्रावणः	अवसंसी	
बलकरः	मुक्तापकर्षणः	अवकाशकरः	
वर्णकरः	हेदनः	वातहरः	
पित्तघ्नः	पाचनः	स्तम्भविध्ननः	
विपन्नः	प्रीणनः	बन्धविध्ननः	
मारुतघ्नः	लघुः	संवातविध्ननः	
तृणप्रशमनः	उष्णः	सर्वरसप्रत्यनीकः	
दाहप्रशमनः	स्निग्धः (च)	आस्यस्त्रावणः	
त्वच्यः	धातुनिग्रहणः	कफविन्यन्दनः	
केश्यः	अनुलोमनः	स्रोतोविशोधनः	
कण्ठ्यः	कोष्ठविदाही	शरीरावयवमार्दवकरः	
घल्यः	बहिः शीतः	आहाररोचनः	
प्रीणनः	प्रायशो हृद्यः (सु)	आहारयोगी	
जीवनः	हृदयबोधनः	किंचिद् गुरु	
तर्पणः	तर्पणः	स्निग्धः	
बृंहणः	व्यवायी (अ. सं.)	उष्णः (च)	
स्थैर्यकरः	कफकरः	संशोधनः	
	पित्तकरः	विश्लेषणः	

मधुरो रसः	बम्लो रसः	लवणो रसः
क्षीणक्षतसन्धानकरः	रक्तप्रकोपकः (अ.ह.)	शैथिल्यकरः (सु)
प्राणप्रह्लादनः	सृष्टमूत्रः	स्नेहनः
ओष्ठप्रह्लादनः	सृष्टपुरीषः	स्वेदनः
जिह्वाप्रह्लादनः	व्यवायी
दाहप्रशमनः	कफविन्यन्दनः
मूर्च्छाप्रशमनः	सृष्टमूत्रः
पदपदपिपीलिकेष्टः	सृष्टपुरीषः
स्निग्धः		
शीतः		
गुरुः (च)		
चक्षुष्यः		
संधानः		
बालहितः		
वृद्धहितः		
क्षतक्षीणहितः		
कृमिकरः		
कफकरः (तु)		
स्तन्यकरः		
मृदुः (अ. सं.)		
सृष्टमूत्रः		
सृष्टपुरीषः		

फटुको रसः	तिक्तो रसः	कषायो रसः
मुखविशोधनः	अरोचिष्णुः	संशमनः
अग्निदीपनः	अरोचकहरः	संप्राही
भुक्तशोषणः	विषघ्नः	संधानकरः
नासास्त्रावणः	कृमिघ्नः	पीडनः (व्रणस्य)
नेत्रविरेचनः	मूर्च्छाप्रशमनः	रोपणः
इन्द्रियपाटवकरः	दाहप्रशमनः	शोषणः
अलसकविनाशनः	कुष्ठप्रशमनः	स्तम्भनः
क्षयधुविनाशनः	तृष्णाप्रशमनः	श्लेष्मप्रशमनः
उपचयहरः	त्वक्स्थिरीकरः	रक्तप्रशमनः

कटुको रसः

तिक्तो रसः

कषायो रसः

उदरदहरः

मांसस्थैर्यकरः

पित्तप्रशमनः

अभिराम्यन्दहरः

ज्वरघ्नः

क्षेदशोषणः

स्नेहहरः

दीपनः

रूक्षः

क्षेदहरः

पाचनः

शीतः

मलहरः

स्तन्यशोधनः

लघुः (च)

अजरुचिकारः

लेखनः

लेपनः (सु)

कण्डूहरः

क्षेदोपशोषणः

बद्धपुरीषः

अणावसादनः

मेदोपशोषणः

त्वग्मसर्पणकरः

कृमिहरः

मज्जोपशोषणः

प्रीणनः (अ. सं.)

मांसविलेखनः

लसिकोपशोषणः

मेदोविशोषणः

बन्धच्छेदनः

पूयोपशोषणः

आमस्तम्भनः (अ. ह.)

स्रोतोविवरणः

स्वेदोपशोषणः

बद्धमूत्रः (र. वै.)

श्लेष्मशमनः

मूत्रोपशोषणः

लघुः

पुरीषोपशोषणः

उष्णः

पित्तोपशोषणः

रूक्षः (च)

श्लेष्मोपशोषणः

पाचनः

रूक्षः

शोधनः

शीतः

स्थौल्यहरः

लघुः (च)

आलस्यहरः

छेदनः

स्वेदहरः

शोधनः

कफहरः

कण्ठविशोधनः

विषहरः

मेध्यः

कुष्ठहरः

बद्धमूत्रः

स्तन्योपहन्ता

बद्धपुरीषः (र. वै.)

मेदोपहरः

शुक्रहरः (सु)

शोणितसंयातमेदनः

तीक्ष्णः (अ. सं.)

मलापहरः (अ. ह.)

बद्धमूत्रः

बद्धपुरीषः (र. वै.)

रसाना गुणतारतम्यम्

शीता (सौम्या) रसा	उष्णा (आग्नेया) रसा	गुरवो रसा
मधुर (उत्तम)	कटु (अवर)	मधुर (उत्तम)
तिक्त (अवर)	अम्ल (मध्यम)	लवण (अवर)
कषाय (मध्यम)	लवण (उत्तम)	कषाय (मध्यम) (च)
		अम्ल (सु)

लघवो रसा	रूक्षा रसा	स्निग्धा रसा
अम्ल (अवर)	कषाय (उत्तम)	मधुर (उत्तम)
कटु (मध्यम)	कटु (मध्यम)	अम्ल (मध्यम)
तिक्त (उत्तम) (घ)	तिक्त (अवर)	लवण (अवर)
कषाय (सु)		

रससहचरा वीर्यसज्ञका गुणा

मधुरः	अम्ल	लवण	कटु	तिक्त	कषाय
स्निग्ध	लघु	किञ्चिद् गुरु	लघु	रूक्ष	रूक्ष
शीत	उष्ण	स्निग्ध	उष्ण	शीत	शीत
गुरु	स्निग्ध	उष्ण	रूक्ष	लघु	गुरु
मृदु		तीक्ष्ण	तीक्ष्ण		

दोषहरा रसा

वातहरा रसा	पित्तहरा रसा	कफहरा रसा
मधुर	कषाय	कषाय
अम्ल	मधुर	कटु
लवण	तिक्त	तिक्त

दोषजनका रसा

वातजनका रसा	पित्तजनका रसा	कफजनका रसा
कटु	कटु	मधुर
तिक्त	अम्ल	अम्ल
कषाय	लवण	लवण

रसानां विपाकाः

मधुररस- विपाकः	आम्लरस- विपाकः	लवणरस- विपाकः	फटुरस- विपाकः	तिक्त-रस- विपाकः	कषायरस- विपाकः
मधुरः	अम्लः	मधुरः	फटुः	फटुः	फटुः
गुरुः	लघुः	गुरुः	लघुः	लघुः	लघुः

वीर्यं

भगवान् धन्वन्तरि और पुनर्वसु आत्रेय ने प्रभूत (विशेष) कार्य करने की शक्तिवाले द्रव्यगत भूतप्रसादातिशय-रूप^१ (-जन्य), रस, गुण, विपाक और सारभूत अंश (सत्त्व-एविटन्द् प्रिन्सिपल्स) इन सब में व्यापक ऐसा “द्रव्य जिस (रस, गुण, विपाक, प्रभाव या भूतप्रसादातिशय रूप सत्त्वांश) के द्वारा शरीर पर संशोधन, संशमन आदि क्रिया करना है वह वीर्य कहलाता है” यह वीर्य का लक्षण लिखा है। इस लक्षण के अनुसार द्रव्य में भूतप्रसादातिशय (महाभूतों के सारतम अंश) से उत्पन्न कार्यकारिणी-शक्ति सम्पन्न अंश वह चाहे रस हो, विपाक हो, गुण हो, प्रभाव (विचित्र प्रत्ययारब्ध अचिन्त्य कार्यकर पांचभौतिक रचना विशेष) हो, या शक्ति सम्पन्न द्रव्यांश विशेष हो सबको वीर्य कहा जाता है। इस मतावलम्बियों को शक्तिमात्र वीर्यवादी या बहुवीर्यवादी कहते हैं।

दूसरा पक्ष पारिभाषिक वीर्यवादियों का था। ये गुरु, लघु, शीत, उष्ण, स्निग्ध, रुक्ष, मृदु और तीक्ष्ण इन आठ गुणों में पारिभाषिक “वीर्य” संज्ञा मानते थे। इस मतवाले अष्टविधवीर्यवादी कहलाते थे। पारिभाषिक वीर्यवादियों का एक दूसरा पक्ष भी था जो शीत और उष्ण इन दो गुणों में ही परिभाषित वीर्य संज्ञा मानते थे। इस मतावलम्बियों को द्विविधवीर्यवादी कहते हैं। पारिभाषिक वीर्यवादियों का कहना है कि द्रव्य (द्रव्यों की पांच-

^१ भूतप्रसादातिशयो द्रव्ये पाके रसे स्थितः ।

चिन्त्याचिन्त्यक्रियाहेतु वीर्यं धन्वन्तरेर्मतम् ॥

(चरकसंहिता की शिवदास सेन व्याख्या में उद्धृत तंत्रान्तर वचन) । द्रव्य, (द्रव्यों का पांचभौतिक रचना विशेष) विपाक या रसमें रहा हुआ चिन्त्य या अचिन्त्य कार्य का हेतु जो भूत प्रसादातिशय उसको वीर्य कहते हैं।

^२ येन कुर्वन्ति तद्वीर्यम् । (च. सू. अ. २६ । सु. सू. अ. ४१.)

भौतिक रचना विशेष), रस और विपाक इनका आयुर्वेद में स्वतंत्र वर्णन और विचार किया गया है, अतः इनके अतिरिक्त उत्कृष्ट शक्ति सम्पन्न विशेष कार्य करनेवाले गुर्वादि आठ गुणों को ही वीर्य संज्ञा देना उचित है । क्योंकि द्रव्यगत साराश, रस या विपाक किसी को भी वीर्य मानें परन्तु ये सब विशिष्ट शक्ति सम्पन्न गुर्वादि आठ या शीत, उष्ण दो गुणों द्वारा ही अपना कार्य करेंगे (अतः उनको ही वीर्य मानना चाहिये) । यह बात वीर्य का निरूपण करते हुए सुश्रुतार्य ने स्पष्ट रूप से कहा है^१ । वे कहते हैं कि—द्रव्यों के वमन, विरेचन, साम्राहिक, अग्निदीपन, पीडन, लेखन, बृहण, रसायन, वाजीकरण, श्वयधुकरण, श्वयधुविलयन, दहन, दारण, मादन, प्राणविविप्रशमन आदि औषध कर्म वीर्य की प्राधानता से सम्पन्न होते हैं । वह वीर्य दो प्रकार का है—उष्ण और शीत । क्योंकि जगत के सर्व पदार्थ आग्नेय (अग्नि गुण प्रधान उष्ण) और सौम्य (सोम जल गुण प्रधान शीत) इन दो त्रेणियों में विभक्त हैं । कई आचार्य शीत, उष्ण, स्निग्ध, रूक्ष, गुरु, लघु, मृदु, और तीक्ष्ण आठ प्रकार का वीर्य मानते हैं ।

गुर्वादि आठ गुण जब उत्कृष्ट शक्ति सम्पन्न हों तब उनको वीर्य कहा जाता है, अन्यथा उनको गुण ही कहते हैं^२ ।

वीर्य सञ्ज्ञक शीत, उष्ण, स्निग्ध, सूक्ष्म, गुरु, लघु, मृदु और तीक्ष्ण इन आठ गुणों में से तीक्ष्ण और उष्ण ये दो गुण अग्नि महाभूत की प्रधानता वाले, गुरु और शीत ये दो गुण जल महाभूत की प्रधानता वाले, स्निग्ध जल महाभूत

^१ इहौषधकर्माण्युर्वाधोमयभागसशोधन सशमन साम्राहिकाग्निदीपन पीडन लेखन बृहण रसायन वाजीकरण श्वयधुकरविलयन दहन दारण मादन प्राणविविप्रशमनादीनि वीर्यप्राधान्याद् भवन्ति । तच्च द्विविधम् उष्ण शीत च, अग्नीषोमीयत्वाज्जगत् । केचिदष्टविधमाहुः शीत, उष्ण, स्निग्ध, रूक्ष, गुरु, लघु, मृदु तीक्ष्ण, चेति (सु. सू. अ. ४०)

^२ वीर्यं भूतगुणोत्कर्षनिरूपणं, वीर्यगुण कर्माणि च—

तत्र य इमेऽष्टौ गुणा वीर्यसञ्ज्ञका शीतोष्ण स्निग्ध रूक्ष मृदु तीक्ष्ण पिच्छिल-विशदास्ते वा तीक्ष्णोष्णावाग्नेयौ, शीत पिच्छिल बभ्रुगुणभूयिष्ठौ, पृथिव्यम्बुगुणभूयिष्ठौ र्नेह, तोयाकाश गुणभूयिष्ठौ मृदुत्व, वायुगुणभूयिष्ठौ रौक्ष्य, क्षिति समीरगुणभूयिष्ठौ वैशद्यम् । तत्र कर्माण्युष्णस्य दहन पाचन मूर्च्छन स्वेदन वमन विरेचनानि शीतस्य प्रहादन निष्यन्दन स्निग्धीकरण प्रसादन क्लेदन जीवनानि, स्निग्धस्य र्नेहन बृहण सतर्पण वाजीकरण वय स्यापनानि, रूक्षस्य अनिलवृद्धि समहण पीडन विरूक्षणोपरोपणानि, मृदो रक्तमासप्रसादन सुत्वर्णनानि, तीक्ष्णस्य सप्रहाचूषणवदारण स्त्रावणानि । तत्र उष्णस्निग्धौ वातजौ, शीत मृदु पिच्छिलापित्तजा, तीक्ष्ण रूक्ष विशदा श्लेष्मज्जा । (सु. सू. अ. ४१)

की प्रधानता वाला, मृदु जल और आकाश महाभूत की अधिकता वाला, रुक्ष वायु महाभूत की अधिकता वाला और लघु अग्नि, आकाश और वायु महाभूत की अधिकता वाला है।

उष्ण वीर्य से शरीर पर दाह (जलन) पचन (अन्न, रसादि धातु और घण शोध को पकाना) मूर्च्छा लाना, स्वेदन (पसीना लाना), वमन, विरेचन, विलयन (पिछलाना), भ्रम (चकर आना) तृषा और ग्लानि उत्पन्न करना, शुरु को कम करना, कफ और वायुका प्रशमन करना, तथा पित्त को उत्पन्न करना और—प्रकुपित करना ये कर्म होते हैं। उष्ण वीर्य लघु है। शीत वीर्य से—शरीर पर प्रह्लादन, (सुख उत्पन्न करना), निप्यंदन स्थिर करना, प्रसन्नता करना, क्लेद उत्पन्न करना, मूर्च्छित को संज्ञा प्रदान करना, स्तम्भन करना, रक्त और पित्त को शांत करना तथा कफ और वायु को उत्पन्न और प्रकुपित करना ये कर्म होते हैं। शीत वीर्य गुरु और वृष्य है। स्निग्ध वीर्य से शरीर पर स्नेहन, बृंहण, संतर्पण (तृप्ति-पोषण करना), वाजीकरण, वयःस्थापन, और वातनाशन और कफवर्धन कर्म होता है। रुक्ष वीर्य वायु को बढ़ानेवाला, घणरोपण और कफनाशक है। गुरु और लघु वीर्य के कर्म गुरु और लघु गुण के समान जानने चाहिये। मृदु वीर्य रक्त और मांस का प्रसादन, स्पर्श में सुख उत्पन्न करनेवाला और पित्तशमक है। तीक्ष्ण वीर्य संग्राही, शोषण, घणशोधविदारण, स्राव करानेवाला तथा कफनाशक है।

भदन्त नागार्जुन कहते हैं कि वीर्य कर्म (फल) लक्षण (कर्मानुमेय) है। अर्थात् द्रव्य का शरीर पर होने वाला कर्मफल देखकर इस द्रव्य में इस प्रकार का वीर्य है यह अनुमान किया जाता है। जैसे शंखाहुली के उपयोग से मेघा की वृद्धि होती है यह देखकर शंखाहुली में मेघ्य (मेघाजनन) वीर्य है यह अनुमान होता है; मैनफल के उपयोग से वमन होता है यह देखकर मैनफल में छर्दनीय (वमनकारक) वीर्य है यह अनुमान से निश्चय किया जाता है, इत्यादि। नागार्जुन शीत-उष्ण आदि गुणों को नहीं परंतु विरेचन, वमन, मादन, आदि कर्म करनेवाले द्रव्यगत कर्मोत्पादक सत्त्वांश को (एवयुट प्रिन्सिपल्स) को वीर्य मानते हैं।

वीर्य की क्रिया का ज्ञान कथ होता है ?

कुछ उपयुज्यमान द्रव्यों के वीर्यों का ज्ञान निपात से अर्थात् जिह्वा या त्वग्निन्द्रिय के साथ उनके संयोग मात्र से होता है। जैसे काली मिर्च के तीक्ष्णत्व का ज्ञान निपात (शरीर संबंध मात्र) से होता है। कुछ उपयुज्यमान

द्रव्यों के वीर्य का ज्ञान अधिवास से अर्थात् जब तक वह शरीर में रहें तब तक शरीर पर होने वाली उनकी क्रियाओं से होता है। जैसे आनुपमास के उष्ण वीर्य का ज्ञान जब तक वह शरीर में रहता है तब तक शरीर में होनेवाली उसकी क्रियाओं से अनुमान किया जाता है। कुछ द्रव्यों के वीर्य का ज्ञान निपात और अधिवास दोनों से होता है। जैसे काली मिर्च के उष्णत्व का ज्ञान निपात और अधिवास दोनों से होता है।

वीर्य का कुछ ज्ञान अनुमान से होता है जैसे सैंधव गत शैत्य का अथवा आनुप मास गत उष्णत्व का ज्ञान उनके शरीर पर होने वाले कार्यों को देखकर अनुमान किया जाता है तथा वीर्य का कुछ ज्ञान प्रत्यक्ष से होता है, जैसे— राई के तीक्ष्णत्व का ज्ञान जिह्वा या घ्राणेंद्रिय से प्रत्यक्ष होता है।

विपाक

विपाक के विषय में आयुर्वेद में दो मत पाये जाते हैं। (१) आत्रेय सम्प्रदाय के अमिदेश, पराशर आदि का मत और। (२) धन्वन्तरि सम्प्रदाय के सुश्रुत, नागार्जुन आदि का मत।

आत्रेय सम्प्रदाय के मतसे विपाक का लक्षण:— खाद्य हुए रसों का (रस के आधार भूत द्रव्यों का) पचन स्थानों में जठराग्नि के (पचन स्थानों में निस्त द्रव्यों (रसों) के मिश्रण और देहोष्मा के) द्वारा पाक क्रिया पूर्ण होने पर शरीर में शोषित अन्तरस में जो रसान्तर (रस विशेष) की उत्पत्ति होती है, उसको विपाक कहते हैं।^१

यद्यपि “पचन पाक, विशिष्ट पाको विपाक” इस व्युत्पत्ति के अनुसार “विपाक शब्द का मुख्य अर्थ “विशिष्ट (अवस्थापाक से भिन्न) पचन-पाकक्रिया” इत्यादि मात्र होता है, तथापि यहाँ लक्षणा से विपाक शब्द का प्रयोग अवस्थापाक की समाप्ति होनेपर आहार रस और मूल के पृथक्करण के समय शरीर में शोषित आहार रस में जो रस विशेष उत्पन्न होता है उसके लिए लाक्षणिक रूप से किया गया है।

पचनान्तर सर्व द्रव्यों के मूल रसे बदलते नहीं है, कुछ द्रव्यों के मूल रस बदलते हैं तो कुछ द्रव्यों के मूल रस कायम रहते हैं, तथापि

^१ जाठरेणामिना योगाद्यद्वेति रसान्तरम्। रसाना परिणामान्ते स विपाक इति स्मृतः।

पचनान्तर उत्पन्न रसान्तर किं वा कायम रहनेवाला मूल रस दोनों को विपाक कहा जाता है ।

आयुर्वेद में खाये हुए आहार का महास्रोतस (मुख से जुदा तक) के विभिन्न स्थानों में जो आवस्थिक पाक होता है उसको—अवस्थापाक कहते हैं । अवस्थापाक की तीन अवस्था में होती है—

(१) भुक्तमात्रावस्था (२) पच्यमानावस्था और (३) पकावस्था ।

इन आवस्थिक पाकों में खाये हुए छहों रसों वाले आहार का अन्नमार्ग के (१) मुख-कण्ठ (२) आमाशय और (३) ग्रहणी-अन्त्र इन स्थानों में तत्त-स्थान स्थित शोधक कफ, क्लेदक कफ, जठराग्नि पाचक पित्तों (आमाशय रस, अन्न रस, याकृतपित्त) और समान वायु के द्वारा परिपाक होता है । भुक्तमात्रा-वस्था (आमावस्था) पच्यमानावस्था, (विदग्धावस्था) और पकावस्था में छहों रसवाले आहार से पूर्वोक्त तीनों स्थानों में क्रमशः मधुर, अम्ल और कटु रस उद्भूत होने हैं, (उद्भिक्त होते हैं) इस प्रकार-आमावस्था में उद्भूत मधुर रस के कफ, पच्यमाना-वस्थामें उद्भूत अम्लरस से पित्त, और पकावस्था में उद्भूत कटु रस में वात की उत्पत्ति होती है^१ । ये तीनों अवस्थापाक अन्न के चर्वण समय में मुख की मधुरता, अम्ल-तिक्त आदि रस वाले उद्गार और वमन में निकले हुए मधुर-कटु आदि रसवाले द्रव्यों से प्रत्यक्ष गम्य हैं । परंतु अवस्थापाक की समाप्ति (निष्ठा पाक) में रस-मल-विवेक काल में शरीर में शोषित अन्न रस में “ विपाक ” संज्ञक जो मधुर, अम्ल और कटु रस उत्पन्न होने हैं, उनका वातादि दोषों की उत्पत्ति, चक्षुष्यिष्णुत्तता, स्पर्शयिष्णुत्तता आदि आगे लिखे हुए विपाक-लक्षणों से अनुमान किया जाता है, अवस्थापाक के समान उनका प्रत्यक्ष नहीं होता ।

किस रस का किस रस के रूप में विपाक होता है ?

कटु, तिक्त और कषाय रस (वाले द्रव्य) का प्रायः कटु विपाक होता है । अम्ल रस (वाले द्रव्य) का विपाक प्रायः^२ अम्ल होता है, तथा मधुर और लवण रस (वाले द्रव्य) का विपाक प्रायः मधुर होता है ।

^१ अन्नस्य भुक्तमात्रस्य पङ्क्तस्य प्रपाकतः । मधुरात्प्राक् कपोद्भावात् केनभूत उदीर्यते । परं तु पच्यमानस्य विदग्धस्याम्लभावतः । आशयाच्च्यवमानस्य पित्तमचटमुदीर्यते । पक्काशयं तु प्राप्तस्य शोष्यमाणस्य बहिना । परिपिण्डितपक्वस्य वायु स्यात् कटुभावनतः । (च.चि.अ.१९.)

^२ प्रायः शब्द से यह बताया गया है कि किसी किसी द्रव्य का विपाक इससे विपरीत भी होता है । जैसे सोंठ, छोटी बीसल आदि द्रव्य कटु रस वाले होने से उनका विपाक कटु

विपाक के विषय में ऊपर जो लिखा गया है वह आत्रेय सम्प्रदाय के अमिवेश, पराशर आदि का मत है। वे मधुरादि छः रसों के मधुर, अम्ल और, कटु तीन विपाक मानते हैं। रस मतावलम्बियों को रस विपाक वादी या त्रिविध-विपाकवादी कहते हैं। दूसरा पक्ष धन्वंतरि संप्रदाय का था। इस संप्रदाय वालों का कहना है कि “विपाक” शब्द का अर्थ है युक्त द्रव्यों का पचन होना। महामूतों के गौरव और लाघव की दृष्टि से विचार करें तो गुरु और लघु दो वर्ग हो सकते हैं। पृथ्वी और जल दो गुरु हैं और आकाश, वायु तथा अग्नि लघु हैं। जिन द्रव्यों में पृथ्वी और जल महामूत की अधिकता होती है उनका गुरु विपाक होता है अर्थात् उनका परिपाक चिरकाल (देरी) से होता है तथा जिन द्रव्यों में अग्नि, वायु और आकाश महामूत की अधिकता होती है उनका लघु विपाक है अर्थात् उनका शीघ्र परिपाक होता है। लौकिक भाषा में कहा जाय तो “गुरु विपाक” शब्द का अर्थ-पचने में भारी—देरी से पचनेवाला और “लघु विपाक” शब्द का अर्थ-पचने में हल्का-शीघ्र पचनेवाला-होता है। धन्वंतरि संप्रदाय वाले गुरु विपाक के लिये मधुर विपाक और लघु विपाक के लिये कटुविपाक इन गौण संज्ञायों का पारिभाषिक अर्थ में प्रयोग करते हैं। इस पक्ष को गुण-विपाकवादी, कालविपाकवादी, या द्विविधविपाकवादी कहते हैं।

विपाक के कर्म

मधुर विपाक गुरु, कफकर, वात-पित्तनाशक, मल और मूत्र को साफ लाने वाला और शुक्र को बढ़ाने वाला है। अम्ल विपाक लघु, पित्तकर, मल

होना चाहिये, परंतु उनका विपाक कटु न होकर मधुर होता है। एव कुलधी कषाय रस वाली होने पर भी उसका विपाक अम्ल होता है; हरे कषाय रस वाली और आवले अम्ल रस वाले होने पर भी उनका विपाक मधुर होता है, मधुर रस वाले जीही का विपाक अम्ल होता है, तैल मधुर रस वाला होने पर भी उसका विपाक कटु होता है, सोंचर (काला नमक) लवण होने पर भी उसका विपाक कटु होता है, पटोल (बहुला परयल) तिक्त रस वाला होने पर भी उसका विपाक मधुर होता है। इससे मालूम होगा कि अपर ओ रसों के विपाक लिखे गये हैं उनमें अपवाद भी देखे जाते हैं, इसलिए “प्रायः” शब्द का प्रयोग किया है। द्रव्यगुण के प्रकरण में जहां रस के अवगुण (समान) विपाक होता है वहां प्रायः रसनिर्देशसे विपाक का भी निर्देश किया गया है ऐसा जानना चाहिये। परंतु जहां रस से विपरीत विपाक होता है वहां विपाक का स्पष्ट शब्दों में निर्देश किया है।

और मूत्र को साफ लानेवाला तथा शुक्रनाशक है । वटु विपाक लघु, वातकर, कफनाशक, मल और मूत्र का अवरोध करनेवाला तथा शुक्रनाशक है ।

विपाक का हान कष दोषा दे

विपाक का प्रत्यक्ष नहीं होता । ऊपर जो विपाक के कर्म कार्य लिखे हैं उनको देखकर इस रस (वालो द्रव्य) का अशुक्र विपाक हुआ है यह अनुमान किया जाता है ।

परक्रमेण विपाककर्माणि

कटुविपाकः	अम्लविपाकः	मधुरविपाकः
शुक्रनाशनः	शुक्रनाशकः	सृष्टविष्मूत्रः
वद्धविष्मूत्रः	सृष्टविष्मूत्रः	कफकरः
वातलः	पित्तकरः	शुक्रकरः
लघुः	लघुः	गुरुः

सुश्रुतमतेन विपाककर्माणि

गुरुविपाकः	लघुविपाकः
वातपित्तघ्नः	वद्धविष्मूत्रः
कफकरः	वातकरः
सृष्टविष्मूत्रः	श्लेष्मघ्नः

प्रभाव

जिस द्रव्य में रस, वीर्य और विपाक का सामान्य हो अर्थात् उस द्रव्य में रहे हुए रस, विपाक और वीर्य के जो कार्य आयुर्वेद शास्त्र में कहे हुए हैं वे समान हों (शास्त्रकथनानुसार हों) परंतु कर्म में विशेषता हो अर्थात् उसमें रहे हुए रस, वीर्य और विपाक के कर्मों से भिन्न ही कर्म देखने में आवें,

^१ कटुतिक्तकषायाणां विपाकः प्रायशः वटुः । अम्लोऽम्लं पच्यते स्वादुर्नधुरं लवणस्तथा ॥ शुक्रदा वद्धविष्मूत्रो विपाको वातलः वटुः । पित्तकृत् सृष्टविष्मूत्रः पाकेऽम्लः शुक्रनाशनः ॥ तेषां गुरुः स्यान्मधुरः वटुश्चम्लावतोऽन्यथा (च. सू. अ. २६) । आगमे हि द्विविध एव पादो मधुरः, वटुश्च, तयोः मधुराख्यो गुरुः, वटुश्चाख्यो लघुरिति । पृथिव्यप्तेजोवाय्वाकाशानां द्वैविध्यं भवति गुणसाधर्म्याद् गुदता लघुता च । पृथिव्यापथ्यं गुर्व्यः शेषाणि लघूनि तस्माद् द्विविध एव पाक इति । (बु. सू. अ. ४०.)

कर्म का कारण प्रभाव है। जैसे—चित्रक रस में कटु है, उसका विपाक कटु होता है और उसका वीर्य उष्ण है। चित्रक में कटु रस का, कटु विपाक का और उष्ण वीर्य का जो कार्य शास्त्र में कहा गया है वही देखने में आता है, उन से विपरीत कोई विशेष कार्य देखने में नहीं आता; परन्तु दन्ती चित्रक के समान रस, वीर्य और विपाकवाली अर्थात् रस में कटु, विपाक में कटु और उष्ण वीर्यवाली है, किन्तु उसमें इन रस, वीर्य और विपाक के कार्योंसे विशेष (भिन्न) विरेचन रूप कर्म से देखने में आता है, दन्ती के इस विरेचन-रूप कर्मका कारण प्रभाव है। एक विष जो दूसरे विषका नाश करता है उसका कारण उस विष में रहा हुआ प्रभाव है। वामक और विरेचक द्रव्य जो वमन और विरेचन कराते हैं उनमें भी प्रभाव ही कारण है। क्योंकि उसके समान रस, वीर्य और विपाक वाले अन्य द्रव्य वमन या विरेचन नहीं कराते। नाना प्रकार के रसों के तथा अन्य वनस्पतियों और द्रव्यों के धारण करने से जो विविध प्रकार के कर्म होते हुए देखने में आते हैं वे उनके प्रभाव से ही होते हैं।

द्रव्य गत कार्य-कारिणी शक्ति को वीर्य कहते हैं। यह शक्ति दो प्रकार की होती है—एक चिन्त्य शक्ति और दूसरी अचिन्त्य शक्ति। चिन्त्य शक्ति वह है जिसका द्रव्यों के पांचभौतिक सङ्घटन, रस, गुण या विपाकद्वारा कर्म के साथ कार्य-कारण-संबन्ध दिखाया जा सके, इस चिन्त्य शक्ति को आयुर्वेद की परिभाषा में वीर्य कहा जाता है। अचिन्त्य शक्ति वह है जिसका द्रव्यों के पांचभौतिक सङ्घटन, रस या विपाक द्वारा उनके कर्मके साथ कार्य-कारण-संबन्ध न दिखाया जा सके, उसको आयुर्वेद की परिभाषा में प्रभाव कहते हैं।

APPENDIX B-II (3).

"NEED FOR RESEARCH IN INDIAN PHILOSOPHY AND AYURVEDA WITH SPECIAL REFERENCE TO PSYCHOLOGICAL MEDICINE"

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1. Introductory.

This memorandum has been written in response to the kind invitation extended to me by the Committee on Indigenous Systems of Medicine, appointed by the Ministry of Health, Government of India, and presided over by Sir R. N. Chopra.

A few words of explanation are necessary at the outset, to explain why, I, who do not know Ayurveda and with several other limitations, have still responded to this invitation. I must also make it very clear, that modern medicine, which is rational, scientific, progressive, and whose conclusions can be verified and modified by experiments and clinical observations, can never be supplanted by any other system of medicine. But the inherent wisdom in Ayurveda, can certainly fill up many gaps in modern medicine.

The philosophy of medicine has received little attention until recently. And in psychological medicine, the present position is such, that, in spite of an accumulation of facts, attempts at integrating them into a scientific discipline have not been very successful. And the speculations of psycho-analysis, which makes such an attempt, are disappointing, and often are only a matter of faith.

Specific treatment of mental disorder (psychoses and psychoneuroses) is unknown. The recent advances, as illustrated by Shock-therapy, and the various operations on the brain, have been merely triumphs of empiricism. And a new approach to the whole problem of treatment is necessary.

I have been engaged for some time in the study of Indian philosophical systems—*Darsanas*. The theory of Ayurveda, in some of its essentials, has been derived from the Nyaya and the Vaisheshika Schools of philosophy. And, during my studies, I have been profoundly impressed with the analytical insight, and powers of observation of the ancient sages of India. Specially to be noticed in their writings, is their emphasis on the psycho somatic concept in medicine and philosophy, and the manner in which

problems of personality which forms the subject matter of psychological medicine are dealt with by them

It is my conviction that at the moment India is in a singularly favourable position to lead the world in psychological medicine. This it cannot do by trying to emulate the West in their experimental or technical achievements. But it can do so by offering the world a coherent system of interpretative psychiatry which it lacks at present. And this can be realised only if competent scholars are forthcoming to study intensively but with an entirely different orientation and with aims and objects totally different to what they have been accustomed to so far the classic works in original of the different schools of Indian philosophy (*Darsanas*) and *Ayurveda*. The new orientation should be objective and the aim should be to build from a mass of apparently unrelated disconnected and indifferently understood bundle of facts a new discipline a new system of scientific interpretative psychiatry.

Such an intensive study will also throw light on the psychological problems peculiar to India and their treatment. So far we have had to depend upon the observations of European and American psychiatrists on European and American patients for guidance in treatment of Indian patients. These observations have been often found inapplicable and dangerous in practice on Indians. Also there is not a single authoritative text book written by an Indian on psychiatry.

It is high time that such conditions were remedied that we can rely on our own observations and draw our own conclusions from such observations on Indian patients.

These remarks I believe are sufficiently explanatory as to why in spite of my many limitations I have responded to the invitation by the Committee to write this memorandum.

As regards the paper itself after a preliminary survey of the basic problems in psychological medicine the lack of integration therein and the unsatisfactory nature of psycho analytic explanations I have tried to show in some detail how an intensive re-oriented study of classical Sanskrit *Darsanas* *Ayurveda* and allied subjects can help in building up a scientific system of interpretative psychiatry.

2.. Basic Problems of Modern Psychological Medicine.

It must be remembered that inspite of many advances, we are still at the descriptive level in psychological medicine. The various types of reactions designated as mental disorders, are comparable, only to syndromes in general medicine. They are not diseases in the sense that their etiology, pathology, clinical course, and treatment have been clearly understood. This difficulty in psychiatry arises chiefly from the fact that unlike in general medicine, the same group of stimuli can produce different types of reaction in different individuals. While undoubtedly, psychological stresses can produce mental illness, the biochemical factors are equally important. Hereditary factors, however, though important, are over-rated, and the salutary effects of training and environment are not sufficiently appreciated.

While discussing the importance of psychological stresses in the development of mental disorder, it has also not been sufficiently stressed that there is usually a period after such a shock, which corresponds to the incubation period in infective diseases, and which must elapse before the mental illness becomes manifest, and if this factor is overlooked, others may be given undue prominence. Another bewildering element in psychological medicine, is the simultaneous presence in mental patients of two varieties of reaction, one of which might be termed cortical, and the other, nuclear. Investigation of these problems in India is a matter of urgency.

Dramatic success attained by methods of physical treatment, such as those effected by chemically induced convulsions, and by the surgical division of the white matter in the frontal lobes, have been triumphs only of empiricism. As Henderson and Gillespie put it, they seem to be often based on reasoning that paradoxically appears the more faulty, the more their practical successes are examined. Before arriving at a diagnosis one should of necessity take into account all factors,—both cross-sectional and longitudinal. And no method of investigation, psychological, physical, pathological, or bio-chemical should be neglected. And in India, the organic factor, statistically speaking, is perhaps the more important than the purely psychological.

3 Functions of the Brain.

The study of the functions of the brain is confronted by a problem that is unique, and of great difficulty. In every other

tissue and organs, except brain and bone, function and metabolism can be correlated. The brain, silent and motionless, traffics with the imponderable (FEARON). Structurally speaking there is no difference between the brain of a genius and that of an average man. And bio chemically, slices of both their brains utilise the same amounts of oxygen, glucose and other chemicals. The bone also has its own unique problems, which however, need not detain us here.

In the case of other tissues, intensity of function will be in proportion to energy produced or heat liberated as in the case of muscles, or will be in proportion to the osmotic pressure generated, as in the case of the kidney or the other glands.

But that is not so in the case of the brain. And there is no known physical method of gauging its functions, psychological methods are unsatisfactory, and fundamental work is required. There was some hope that the methods available for measuring oxidation reduction potentials, now being used for purposes of determining tissue respiration, would throw some light on the subject, but they have not been realised.

Electro encephalography has so far thrown no light on problems of mental functioning—either normal or abnormal. A new approach is essential, and fundamental research, theoretical and practical, is awaited. And if such an approach is even but glimpsed by an intensive study of Sanskrit systems, it will mean a great future for world psychiatry.

4 Approach to the Problem

The world owes a debt of gratitude to FREUD for demonstrating that (1) mental illness can be caused by purely situational or psychological factors, (2) that symptom formation in such illnesses is not always due to conscious processes, (3) that speech and language can be utilised as powerful therapeutic aids, and (4) that, the analytical method can be applied not only to patients but also to all phenomena of human life. From such an analysis, an insight into the customs, traditions, dreams, pictures, and poems of a nation is obtained, especially into the unconscious motives and mechanisms which produced them. FREUD also discovered the technique (free association) for relieving distress of psychological origin. He demonstrated that all surface materials were related to sub surface materials.

by complicated and consecutive links operating according to principles that could be definitely stated and related. He affirmed the law of psychic determinism that nothing psychological happens by chance but only as a result of a number of existing factors and forces operating in a casual chain. A slip of the tongue, an occasional fancy, even the apparent nonsense of dreams at night, all according to him have definite meaning. His work and writings are equally that of a great poet as of a great scientist. He had a breadth of vision and great understanding of human nature. In his writings, the words are so arranged as to produce the maximum effect, and can rarely be improved. He had, besides, one virtue of a great scientist, namely the courage of conviction to confess when he was wrong.

In spite of all these great qualities, his method is but only one method of approach to the problems of personality and it certainly is not perfect. Many basic teachings of FREUD are no doubt applicable to all the members of the human race. But the customs, traditions and civilisation of India and the East are so different from those of the West that another method of approach is not only valid but necessary. Sometime ago, while editing the chapter on Mental Diseases of the Bhore Committee report, I defined "Positive mental health as discriminative self restraint associated with consideration for others." It was my impression at the time that it was a very original definition. Subsequently while reading Shankara's Vivekachudamani the first verse defines Viveka as discrimination, and continues to include in it much more than more people could have foreseen or expressed.

Many psychological doctrines and results of modern research have been anticipated and commented upon with great insight by ancient sages of India. They have stated categorically that in the ultimate analysis, selfishness on the psychological side and starvation on the physical are responsible for disorganisation in the individual and society alike. This fact stands as true today as it was enunciated centuries ago and forms a pivot around which psychology revolves. But to the ancient sages the problems of personality and of mind, as we understand it, were only aspects of the general problem of ultimate reality and were treated as such. Hence the impression that Indian psychology is subjective, mystic and philosophical. But there is nothing to prevent students of modern psychology to study it in a purely objective manner, which under present conditions is imperative. Such a study is sure to furnish valuable approaches to the prob-

lems of the functioning of the human mind in general and that of psychological medicine in particular

5 Aims and objects—Suggestions for research

Certain objectives of study should however be kept prominently in mind, lest it become pedantic, discursive, metaphysical, and aimless. The most helpful research would be that directed towards the elucidation of problems relating to (1) the psychosomatic concept in medicine, (2) mental mechanisms and interpretative psychiatry, (3) personality, its alteration in disease, (4) mental hygiene, (5) postulation of concepts on the functions of the brain and nervous system, which should be capable of verification by experiment and observation and (6) treatment of neuro psychiatric illness, by psychological and physical methods

The whole system of Ayurveda is based on the psychosomatic concept in medicine. It is a matter for admiration, that without the aid of a microscope, without any modern instrument with but primitive knowledge from present day standards of the basic sciences of physics and chemistry, with only their intuition and their clinical observation to guide them, our ancestors should have built up a well integrated system of medicine. This also explains in part why Ayurveda should be so one sided in its development, and its indebtedness to philosophy. Modern medicine is now beginning to appreciate the usefulness of the psychosomatic concept of health and disease.

Hughlings Jackson's concept of levels in the nervous system, their intergration in health, and disorganisation in disease, is in a general manner anticipated by the Sankhya School of Philosophy (refer Sankhya Tattva Kaumudi by Vachaspathi Misra). Problems of consciousness are dealt with in a penetratingly analytical manner in Mandukya, Chandogya and Prasna Upanishads.

Taittiriya anticipated the importance of speech as a therapeutic aid centuries before FREUD. Considerable similarity can be noticed between the Nirvikalpa theory of cognition and perception of the Nyaya School of Philosophy and the recent Gestalt School of Psychology.

The yoga sutras of Patanjali, the Yoga Vasishtha, the Mahabhasyas of Patanjali and Sankhara, the commentaries on various

Darsanas by Kumarila Bhatta, Appayya Dikshita and Vachaspathi Misra, to mention only a few, are rich store houses of learning for the student of psychological medicine. The Buddhist works on Philosophy are equally important, and are perhaps a little more objective in character,

The Yoga Vasishtha begins with a story, which possesses considerable psychological insight. A student went to the hermitage of sage Agastya, and asked him whether knowledge or work was the direct cause of peace of mind and of salvation. Agastya replied that as a bird flies with two wings, so a man can attain peace only through knowledge and work.

Far surpassing all text books on Mental Hygiene, are the Santi Parva in Mahabharata, and the great Bhagwad Gita, both of which concern themselves also with problems of conduct, whose solution is a pressing necessity for man, if he is to live without enmity, tumult and discord, which is attained only by mastery over self. They insist on meticulous discharge of social obligations, and teach equanimity, and balance of mind. Centuries later Osler gave his address on Equanimities, which is now considered to be a medical classic.

Charaka gives us a scheme of life in which he traces the springs of all our actions to the three fundamental motives or biological instincts, of life preservation, wordly desire of acquiring riches for enjoyment, and other wordly aspirations of self-realisation. According to him these three fundamental desires sum up all springs of action. On this view, Will, appears to be more fundamental than feeling or knowledge. Charaka does not seem to begin from the old and stereotyped idea that false knowledge is the starting point of the world. His is a scheme of a well-balanced life which is guided by the harmonious play of these three fundamental desires and is directed by perfect wisdom and unerring judgement. Evil and mischief creep in through errors of judgement, by which the harmony of these desires is broken. All kinds of misdeeds are traced, not to feelings of attachment or antipathy, but to errors of judgement or foolishness (prajnaparadha). This prajnaparadha, may be compared to the moha or avidya of the Nyaya and Yoga. But while the Nyaya and Yoga seem to refer to this moha or avidya as a fundamental defect inherent in our mental constitution and determining its activities as a formative element, Charaka's prajnaparadha is not made to occupy any metaphysical status but expresses itself only in the

individual lapses of judgement This sounds familiar to students of modern abnormal psychology, reminiscent of FREUD, Adler and Jung, but formulated in a more acceptable manner by Charaka, at least a thousand years before them

In the history of Science and Medicine, one observes that modern medicine has evolved naturally from Latin and Greek origins Both Latin and Greek cultures have been completely exploited during the process, and in that sense, Latin and Greek are considered to be *out worn cultures, and the languages, dead languages*

On the same analogy, Sanskrit is said to be a dead language and that nothing could be gained from its further intensive study This is a false analogy, and a total misreading of history Due to a break in ancient Indian civilisation, because of Mohammedan invasion of India, and subsequent British conquest, there has been no natural evolution of Indian culture, Science or medicine, from ancient Sanskrit culture The knowledge laboriously gathered by our ancients is still there to benefit any one who seeks for it In that sense Sanskrit is not a dead language, but very much alive And if we have to maintain our dignity and self respect as an independent nation, contributing to the culture of the world, an intensive study of Sanskrit, is essential

And, psychological medicine is still in its infancy and there is plenty of scope in it for intelligent speculation This can only be achieved by an intensive research in and application of Indian philosophical systems, in the original

Lines of Research

An attempt has been made in the above paragraphs, to emphasise

(1) The comparatively undeveloped state of psychological medicine inspite of many advances the etiology, and pathology of mental disorder is not well understood and hence the classification of mental diseases is arbitrary, empirical and often delightfully vague

(2) Interpretative psychiatry, as practised at present, is not very satisfactory Psycho analytic theories which attempt to interpret signs and symptoms of mental disorder, are often an

excessive strain on one's credulity. And at the moment there is no other theory, offering an alternative explanation.

(3) Specific treatment for functional mental disorders (psychoses and psycho-neuroses) is unknown.

(4) Intensive research in systems of Indian philosophy (Darśanas), Ayurveda, and allied subjects, may provide:

(i) A scientific terminology, and a sequential explanation of mental mechanisms, leading to a more scientifically acceptable interpretative psychiatry, and of the various problems of personality.

(ii) An acceptable programme of mental hygiene for individuals, groups and nations.

(iii) Because of interpolated, irrelevant, and often apocryphal material which detract from the value of the texts, strict examination of the original Sanskrit texts is essential, to purge them of such material. It is a task for competent scholars.

(iv) I have laid more stress on research in Indian philosophy and not merely in the narrow field of Ayurveda for the following reasons:

(a) Ayurveda is based on it, and the Darśanas can be exploited with better advantage.

(b) Ayurveda however eminent as a system a thousand years ago, is in many respects outmoded because of recent advances in the basic sciences, technical advances and experimental knowledge brought about with the help of various instruments.

(c) Ayurvedic pharmacology is submerged in general pharmacology, and research in it, is research in pharmacology.

(d) For psychological medicine, philosophy is as important, if not more, than Ayurveda.

(e) I am however open to the conviction that research in Ayurveda will provide newer methods of treatment of mental disorder, as well as of other diseases.

(v) Lastly, it must be emphasised that all research undertaken in this field, will be of great historical importance, as unravelling a glorious period in the history of medicine.

7. Conclusion

An attempt has been made in the above pages to point out the need for research in Indian philosophy, and Ayurveda, in the original Sanskrit texts, with special reference to psychological medicine. It is hoped that from such a research may be found a coherent explanation of disconnected mental phenomena, and psychiatry may evolve into a scientific discipline. I have refrained from being unnecessarily technical, partly because of lack of knowledge, but as well because this is not a monograph, but only a memorandum presented to a Committee engaged in determining the value of an ancient system of medicine, in a modern world.

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APPENDIX C 1

GENERAL MEMORANDA

MEMORANDUM ON THE INDIGENOUS SYSTEMS OF MEDICINE^{*}
(AYURVEDA AND UNANI) BY THE INDIAN MEDICAL ASSOCIATION

THE Indian Medical Association has considered the subject from the point of view that particularly appertains to all students of scientific medicine. Medicine has for its object the study of the problems relating to the preservation of health, and the prevention and cure of disease in the human being. Besides, it includes the consideration and promotion of positive health so as to prolong life and to enable the individual to enjoy life and to increase its efficiency and working capacity. Medicine is, therefore, of common interest to the whole human kind.

The Science of Medicine—One and Undivided

It is indivisible into separate water tight compartments such as Ayurvedic, Unani, Modern, Scientific and so forth. As there is no indigenous systems of Physics, Chemistry, or Astronomy, nor an English, German or American^{*} System of them, so it stands to reason that there are not so many different systems of medicine.

The Indian Medical Association is of the opinion that these so called systems of medicine like any other system or branch of science should be *examined and investigated* with an open mind, with a view to ascertaining their usefulness in the medical relief of the country, in the light of the latest available knowledge and information of medical science and the allied branches of biological and physical sciences.

Ayurvedic and Unani Systems

Speaking historically, Ayurveda is the most ancient system of medicine that had its origin in the pre historic days of the Vedas in India. It influenced and led to the growth of the Greco Roman medicine, as well as its Arabic variant—the Unani Tibbi.

The Unani System

The word Yunani or Unani comes evidently from Ionia or Greece. It derives its origin from Greco Syrian sources. Both Greece and Rome owed a great deal of their knowledge of medicine to Buddhist preachers sent out by Chandragupta, Asoka and other Buddhist princes. The Baghdad and Bangers schools of medicine contributed to the teaching

medieval Europe. The teaching went from there to the flourishing Tibbī of the 14th and 15th centuries in Persia and Turkey. The distinguished exponent of this system is Avicenna (980-1036 A.D.) the author of *Kuhāt : Kanūn*—the authoritative work on the general principles of Unani medicine. It recognises and accepts 1. Elements (or *Askan*), 2. Temperaments (or *Mizaj*), 3. Humours (or *Akhlat*), 4. Faculties (or *Qiwā*), 5. Energies or activities (or *Arwah*) etc., more or less on Ayurvedic lines.

Synthesis Possible

The Indian Medical Association is of the opinion that it is quite possible to synthesise and absorb, after scientific investigation, all that is of proved value in these systems into the corpus of the scientific system of medicine that is taught all over the world.

History

The word Veda is derived from the Sanskrit root 'Vid' which means 'to know', 'to judge', 'to learn', 'to gain', is analogous to the same Latin root 'Videre,' 'to see'. Ayurveda or the study of 'Ayuh' or vital energy, longevity, the disease, their prevention and cure, is said to have been derived from the Yajur Veda and the Atharva Veda. According to legends thus Vidya is said to have been transmitted in the following order:

From Brahma to Daksha the Prajapati, to the two Ashvini Kumaras—the two sons of the Sun God 'Surya', to Indra—the king of Gods, to Bharadvaja—a learned human sage, a priest physician—who is said to have been the author of the 12th hymn of the 10th book of the Atharvaveda. Bharadvaja taught Atreya. Six pupils of Atreya, namely Agnivesa, Bhela, Jatukarna, Parashara, Harita and Ksharpani wrote notes and compendia of his teachings. Of all these, only a single manuscript by Bhela and a work by Agnivesa exists. One of them 'thrice revised and recast', survives in skeleton and is known as the Charaka Samhita. It was edited by Charaka of Kashmir who left it unfinished, when he died, perhaps in the 2nd century A.D. This unfinished work was revised and completed by another Kashmir physician Dridabala. The book so compounded is the celebrated Charaka Samhita.

Lost Literature

Not only the works of Jatukarna, Parashara, Harita and Ksharpani but other great works called Vishwamitra Samhita, Ksharnanda Samhita, Kapila tantra, Gautama tantra are apparently lost to us.

Alexandar the Great's invasion in 327 B.C. was followed by the depredations caused by the Scythians and the Hunas in the 6th Century A.D. The Saracens under Mahmud of Gazani over-ran the country in the 11th century A.D. (the sack of Somnath in 1025 A.D.) Valuable literary treasures were lost during these and subsequent invasions, particularly during the burning of the great manuscript library of Prithviraj, the last Indian Emperor of India, by Mahmud Ghorī (1192 A.D. Circ).

The Existing Literature of Ayurveda

Charaka Samhita has been mentioned already. The greatest name in Surgery is that of Dhanwantari of Benares. His pupils were Sushruta, Paushkalvata, Gopurarakshita, Bhoja, Bhaluki, Karavirya, Vaitarana. They have all passed into oblivion, except for the fact that, their names are referred to in old existing commentaries. The Sushruta Samhita is the only one of them, that survives today, as a revised and recompiled summary of the great original called Vriddha-Sushruta. The recompiler of Sushruta drew largely from a great work by Videha on the diseases of Eye, Ear, Nose and Throat, but this, as well as the large Samhitas on the same subject by Nimi, Kanakayana, Garga, and Galava, Chakkshushya, Satynki, Saunaka, Karala, Krishnatrey, etc.

Madhava wrote a pathology (Nidana) about the 7th century A.D.

Vagbhata, the younger, wrote a compendium in the 7th or 8th century known as the Ashtanga Hridaya Samhita, based upon the Ashtanga Samgraha of the elder Vagbhata.

The 4 great works of Ayurveda are therefore those of Charaka, Sushruta, Vagbhata and Madhava.

Thereafter no original work of Ayurveda was produced—and the history of Ayurveda lapsed into a period of stasis and stagnation.

A Period of Stasis and Stagnation

The system was taught without dissection and objective demonstration by teachers to the students. Teaching was imparted according to the *tol-system* and *personal apprentice system* in home *patasalas*. It is extremely important to recognise, that because of this unsatisfactory method of teaching and because of inevitable time-gaps and lost continuity during the periods of stasis and stagnation, commentators have interpreted the texts, each in his own way, according to his own ideas—and a great deal of confusion has, therefore, crept in, in their interpretation.

The Teaching of Ayurveda

The difficulty in the teaching of Ayurveda is insurmountable. Having been taught so long without any reference to anatomy, physiology, and pathology of the human body, the technical terms used in the texts, thousands of years ago, have not only lost their original meaning but have received various fantastic interpretations. So much so, that one authority fights with another today to establish his own point of view. This happens not occasionally, once or twice, but prevails in respect of essential terms used throughout the 4 or 5 ancient text books referred to above. We may refer here to the controversy, that raged for 10 years (1922-31) and yet was never settled, between Kaviraj Gangadhar Shastri, Joshi and Mahamahopadhyaya Kaviraj Gananath Sen, M A, L M S about the interpretation of *kala*, *peshi*, *snayu*, *shira* and *dhamani*, which was published in a pamphlet brought out by the latter entitled "*Sanjas panchaka bimarsa*."

Kaviraj Gananath characterised the existing text of Sushruta, as 'bristling with inaccuracies of ages', and in the place of the old saying, 'shareere sushrutah shresthab,' or Sushruta is the best authority in Anatomy went so far as to say, 'Shereerae Sushrutah nashtah', or Sushruta is good for nothing in Anatomy. Besides, Sushruta has devoted only 69 pages to the whole human Anatomy including embryology.

The scheme recently submitted by Dr M N Agashe, M B B S, Sanchalak, Ayurveda Sanshodhan Mandir, Satara, to the Committee appointed by the Central Government for the upliftment of the Indigenous System contains similar confession regarding the impossibility of interpreting the old terminology. He asks with several queries, under each term, the meaning of *Rasa* (plasma? tissue fluid? C S Fluid?), *Meda* (fat? red bone marrow?), *Majja* (contents of bones? brain?).

One and Only Conclusion

All this leads to but one and only conclusion possible, namely, that the 4 or 5 books of Ayurveda as they exist today, can supply to us some drugs and theories for investigation and research, but cannot be utilised as a System for standardised teaching, nor can it be practised as a profession. What remains to day is a mass of mutilation, adulterated and interpolated, containing some time honoured drugs and medicines, most of which are specimens of polytherapy without reference to chemistry and incompatibility—and a certain number of clinical aphorisms.

The point may be illustrated from *Madhava Nidana* also,—the only work in Ayurveda devoted exclusively to pathology. All kinds of fever

are described together in 173 lines only or about 5 pages of 40 lines each. All heart diseases (hridroga) are allotted a space of 15 lines only. All fractures are treated together in 25 lines.

Catholicity and High Ideology of Ayurveda

An Ayurvedic physician is required to have knowledge not only of medicine but of allied sciences or he would be condemned as a quack.

He is to keep abreast of all medical discoveries in order to render efficient succour to suffering humanity. He is enjoined to treat his patient as his own begotten child.

Ayurveda of Today

It has got no scientific surgery, midwifery, gynaecology, pediatrics, jurisprudence, hygiene, pathology, bacteriology, etc. It has neither scientific anatomy, physiology, pharmacology nor physics, chemistry and biology. As a necessary corollary thereto the result has been devastating upon medicine as well. She is deprived of the third eye of knowledge, namely, the measures for temperature, blood pressure, etc., the x rays, the microscope, the stethoscope, the endoscope, and other 'scopes' and 'meters', 'grams' and 'graphs' of later invention. The result is, that for the purpose of clinical case taking, a practitioner of indigenous system of medicine is not in a position to examine the various systems of the body, viz., the nervous, circulatory, respiratory, gastro intestinal, urogenital, and the eye, ear, nose, throat, etc. for the interpretation of symptoms, the differential diagnosis of disease and for the management of diet and specific treatment, in a scientific manner. There is hardly the description of a single disease, therein, that can stand scientific scrutiny and can be studied or learnt for any utilizable purpose, other than for research and comparative study.

Insanity is considered in two different categories—one is a mental disease, the other is insanity due to possession by ghosts, etc., such as Bhuta Deva, Asura Gandharva, Jaksha, Rakshasa, Pisacha, Ancestral spirit (pitri graha), Reptile spirits (Naga graba).

Mantras Charms, Amulets, Jajnas

Mantras Charms, Amulets and Jajnas for appeasement of planets, gods and spirits are widely used for treatment of diseases, as well as for difficult labour. Mantras are to be cited during the preparation of medicines, so that they may be potent and effective.

Some of the diseases of infants are also ascribed to possession by evil spirits. Balagraha, Skandagraha, Rebatigraha, Putanagraha are some of them. Such superstitions are not a little responsible for the high infant mortality in India.

The Pancha Karma Chikitsa, namely, Snehana, Sweden, Vaman, Virechan and Vasti have little to contribute to modern therapeutics either in principle or technique. Indeed some of these are positively dangerous. It can be easily imagined, how dangerous it is to practise catheterization without the anatomical knowledge of the parts and the technique of surgical asepsis.

Diet cannot be planned without the requisite knowledge of metabolism, bio chemistry, the constituents of different food stuffs, their proximate principles, vitamins and caloric equivalents. As a result, therefore, patients treated by the indigenous system suffer from excessive dietetic restrictions protracted convalescence and a considerable loss of body weight and deterioration of general health and vitality which might have been avoided with a scientific regime of diet.

Indigenous Drugs

Already quite a large number of the drugs in the official pharmacopoeia are indigenous and more and more are being tested, added and rejected from day to day. It is scientific research and standardisation of these drugs that can eliminate false confidence, create scientific confidence, and help to popularise indigenous drugs. It is also essential that the Government must ensure the assaying and standardisation of drugs, so that they are of uniform standard and quality, and hence may be utilised in schemes of medical relief and incorporated into the indigenous Pharmacopoeia.

Question of Reform

If any branch of Ayurvedic medicine is sought to be reformed in the light of modern knowledge, apparently enough, it will become the corresponding branch of modern medicine. Therefore the process should be reversed, that is whatever in Ayurveda stands the test of scientific scrutiny, should be absorbed and synthesised into modern scientific medicine. The process, which is rational, will be easy, economical, and efficient and will prevent the reduplication of teaching same or similar subjects in parallel institutions without any uniformity of standard.

Efficiency of Medical Relief

The efficiency of Medical relief cannot be sacrificed at the altar of cheap and half hearted measures with a promiscuous intermingling of a

'little-of-everything' kind of medical education on grounds of emotional nationalism. We should be accused of the worst form of tinkering, in view of the fact, that millions of people die in this country from preventible disease alone. *The Ayurveda has no preventive medicine.*

Medical Education

As regards medical teaching, there should be only one type of medical colleges, teaching all basic scientific, pre-clinical and clinical subjects according to the modern syllabus under the Indian Medical Council. In modern times, when medicine has become an exact science, the well-being of a country and its people is dependent on the cultivation of a scientific outlook, and it is fraught with the gravest consequences, if for emotional, national or any other consideration, one should choose to discard a scientific discipline and go back to the practice of mediaeval ages.

Scientific medicine is based on all available human knowledge past and present, indigenous and foreign, and, therefore, all that is of proved scientific value in those systems may be absorbed and utilised to add to the fund of world knowledge.

No Short-Cut Possible

Medical training has to be prolonged, laborious and expensive in order that it may be efficient. The production of practitioners, doctors, kavirajas and hakims with varying degrees of doubtful competence is not only inimical to the advance of scientific medicine but dangerous to the health of the people. An apparently simple complaint such as sore-throat, stiff-neck, mild fever for a few days, slight diarrhoea with blood, anaemia and weakness, etc., may be due to causes, from most benign to most malignant, and therefore, should not be treated merely for cheapness, for the consolation of some treatment that may be available ready at hand.

The efficiency of medical aid therefore, depends necessarily upon (1) Diagnosis—i.e. the determination of an etio-pathological target eliminating and differentiating diseases that might cause same or similar symptoms, and (2) treatment based upon choice of drugs as indicated and made available by the progress of science all the world over. Both of these depend upon a comprehensive clinical case-taking, and not infrequently upon a complicated examination by X-rays and laboratories, which involve considerable expenses. It is, therefore, the fundamental duty of the Government to provide best medical aid for all people dissolving all barriers of poverty, ignorance, etc., at whatever

cost necessary for the purpose. In India, where millions die every year from preventable disease, it is impossible to practise any system of medicine without adequate knowledge of the acute infectious diseases, their cause, mode of transmission, and treatment in order to reduce death rates and adopt preventive measures against malaria, kala azar, tuberculosis, dysenteries pneumonia, diphtheria, septicaemias, and venereal diseases, etc.

How to utilise the existing registered practitioners of the indigenous systems of medicine It is quite feasible to give these practitioners the privilege of a condensed course of medicine for those who are willing and able to avail themselves of it, in mixed English and Indian languages if necessary, so that they may be utilised as practitioners possessing minimum registrable qualification during the period of transition, when, there is a great dearth of medical men in the country. But the Indian Medical Association is positively of the opinion that all facilities for continuation of teaching in these indigenous systems of medicine should be stopped forth with in the best interest of the country and its people and the students themselves.

The Need of the Hour

Science is not a provincial or even a national commodity. It belongs to humanity as a whole. So the tendency to separation in science should be discouraged. Separate institutions for the modern scientific and the Ayurvedic and Unani systems would mean an enormous waste of men, materials, and money at a time when the country must produce 1,85,000 efficient medical men during the next 25 years to attain even half the efficiency of Public Health Administration in other civilised countries according to the Bhoré Committee Report.

Ayurveda and Unani systems have both lost all other departments of medicine except Materia Medica and Medicine. Therefore, there should be only one uniform type of medical institutions—the modern ones—teaching modern scientific subjects according to the modern syllabus. In these institutions there may be separate Ayurvedic and Unani wards, for treating patients who are willing to be treated under these systems. The facts and figures of these wards should be followed according to modern methods of study and statistics. The case notes particularly those of cured cases, should be handed over to the departments of pharmacology and therapeutics for their study. This will enrich the Indian pharmacopoeia and include all that is best in these systems and will have the effect of unifying those systems into one.

Chairs and stipends should be created for encouraging research in these systems in this manner, so that whatever material of worth may

be salvaged therefrom may be absorbed into the corpus of scientific medicine, and utilised by the world

The present promiscuous method of training in Ayurvedic and Unani schools, makes confusion worse confounded, and costs enormous expenses in man and money by reduplicating the very costly teaching of modern sciences in a substandard manner, with the result that, the products of these institutions cannot be utilised for scientific medical relief in the service of the country.

Considering the poor health and high death rate, as well as the ignorance and poverty of the Indian People, considering also the fact, therefore, that Medical Planning for India must be as efficient and at the same time as economical as possible, India needs to concentrate all her efforts and pool all her resources to produce the medical personnel recommended by the Bhoré Committee in the minimum possible time

India should, therefore, emulate the example of Japan, Turkey, Persia, etc., and evolve one unified system of scientific medicine. India must not for emotional, or national consideration revert or retrovert to mediaevalism, by discarding scientific outlook and scientific discipline.

"India being a poor country, can ill afford to have three systems of medicine running side by side each having its own practitioners, hospitals and sanatoria, its laboratories and trained staff."

It is hoped that the reasons and suggestions outlined above will prove it conclusively that there is no reason why, "the three systems cannot be combined into one all-comprehensive system," and that will give the Government the answer for the question they put to the Chopra Committee in their inaugural address.

The Indian Medical Association hopes that now, when the country has achieved its political independence and is pulsating with the hope of bettering the health and well being of the nation as a whole, the National Government will rise equal to the burden of its duties and responsibilities to help the people and provide them with the essential requirements of life, namely, food, clothing, education and medical relief

APPENDIX C. 2

MEMORANDUM ON "THE INDIGENOUS SYSTEMS OF MEDICINE AND THEIR VALUE", BY LT - COL P C. DUTTA, OBE, MB., D.G.O.,
FRCS CIVIL SURGEON, SIMLA

Whether the Indigenous Systems of Medicine should be adopted as recognised systems of medicine and patronised by the State has been

occupying the public mind for sometime and with the advent of independence this has been given prominent and important place in the national structure

The Central Government has appointed a committee to go into the matter, and advise them. The Government of the U P, a place which is intimately connected with our ancient culture, has issued a questionaire which from the very nature of it appears to be already biased and more or less trying to prove the case in favour of adopting these systems as State medicine perhaps with the allopathic system along with it

To arrive at a sound and worthy decision, the value of these systems has to be considered from the following main aspects

- (a) Their value from the point of our culture and history
- (b) Their utility as compared with the modern and scientific systems the so called Allopathic System
- (c) The retention and if possible further development for the use of the present day physician those drugs and, or methods which may be scientifically proved to be useful to mankind

(a) Cultural and Historical Value

The indigenous systems are intimately associated with our culture and ancient civilization. They are a part of our past glory and we must preserve and retain them. Most of the theories on which these were based have been proved fallacious or inaccurate but that does not mean that they are worthless. It shows the great powers of observation, clinical acumen and technical skill possessed by those men at a time when most of the world was in darkness. Not to preserve that glory will be foolish if not self immolation. This glory must not only be retained, but we must further explore it and expatiate on it by research and study. It is our historical treasure and a nation does not throw away its historical treasure of centuries—the culture and achievements of its forefathers. So, there cannot be any difference of opinion that we must preserve and develop this ancient culture

(b) Their Utility as Modern Medicine

Because they have a cultural value that does not necessarily mean that they are the most efficient systems of medicine to day. Whether the retention of these systems in their present form will be of utmost benefit for the people and the country, is a totally separate question. The short comings of the indigenous system have been fairly well presented in a recent issue of the journal of the Indian Medical Association. I will very briefly narrate one or two outstanding points from the same

"Teaching of Ayurveda—There is great controversy about the technical terms and even the leaders of the profession do not agree among themselves about the true significance of these terms. Having been taught so long without any reference to Anatomy, Physiology and Pathology of the human body, the technical terms used thousands of years ago have not only lost their original meaning but have received various fantastic interpretations.

"Ayurveda today has got no scientific surgery, gynaecology, paediatrics, juris, hygiene, pathology, bacteriology, psychiatry, etc., etc. There is hardly the description of any disease therein that can stand scrutiny and can be studied or learnt for any utilizable purpose other than for research and comparative study."

The superiority of modern medicine over indigenous medicine is obvious to anyone. So it is needless for me to make a case for it. The discovery of new medicines, new appliances, new techniques and the progress made even in the last fifty years are phenomenal. Preventive medicine—one of the most useful branches of modern medicine—was not even thought of by the indigenous systems, because their idea of the causation of disease was imperfect, and unless one knows the cause how can one prevent it? Can anybody imagine the vast movement of population that occurred only a few months ago, would have been possible without any major outbreak of disease had not the health authorities been able to prevent it? The longevity of nations adopting the scientific methods are daily increasing and their death rate is decreasing every year. In the face of these facts and figures can anyone deny the superiority of scientific medicine?

Science is ever progressing, its function is to find the truth. With new discoveries, new things are available for us to treat the sick and ailing. It will be criminal negligence not to take cognisance of this fact. The indigenous systems have been stagnant for centuries and there is no possibility of their improvement so long as the theories on which the systems are based are fallacious. Some of the newer drugs have brought down the mortality of certain very serious diseases from 60% to 10%. So, there can be no reasonable argument to stick to the old fantastic ideas, and not to accept the new ways and methods which science is finding for us.

If, as I say, the so called Western or modern system of medicine is so superior and better, then why are the indigenous systems so popular? There cannot be any denying of the fact that they are more popular in India. If they are assuredly the worse system, why do people fall back on them in their sickness and distress? To find an answer to this question, the development of medicine, its relation to human mind, the psychological background of the Indian mind, our sense of nationalism

and patriotism and religious prejudices, the economic condition of the masses, the availability of Western methods of medicine and the efficiency of the medical relief by Western methods as practised in this country, all have to be fully considered.

(i) *Medicine and the human mind* In the earliest days of human history when man's knowledge of himself and his environment was very limited, he explained everything in imaginary and mystical terms—often confusing illness and death with forces which he usually identified with natural phenomena which he could not otherwise explain. Since death almost always preceded by pain, and, or illness, it was natural for him to seek help from some one, medicine—man or priest, who promised healing and propitiation of the EVIL FORCES he himself could not control. Thus medical and religious arts were often combined and consequently medicine became a part of religion. Whatever his deficiencies might have been, he enjoyed the confidence of his people, as disbelieving him, would tantamount to unbelieving the God and his religion.

The human mind is bound by forces that are neither just nor unjust; irresistible and inevitable. To appreciate the full value and implications of the above statement we have to study it with the context of the human mind and its working. Human mind is full of the past. You may call it prejudice if you like. While we are willing on the one hand to absorb new things we learn in every day-life, we do not act on these readily if they go against our prejudice. The fact that the mind of man has been far behind its intellectual possibilities and further still behind its advanced leadership, has always helped the magical and make believe in medicine. It is far more difficult to fight against faith than against knowledge. Mind does not easily recognise things that are new. Many of us turn to easy solutions and are willing to listen to the most agreeable against best reasons. While science gives us facts, man still have the will to believe in the fallacious. Men have always been intrigued by mystery, more in our country than in any other, where it has always been associated with supernatural phenomena. There is an eternal conflict between our emotions and our intelligence. Credulity is loveable, but apparently we prefer to be fooled.

The primitive mind of man, though modified to some degree by education, is still with us. In all of us there is a residue—large or small—of inherited dreads, beliefs and superstitions, and a faith more or less certain in the fallacious. To wage war against these means fighting against old established customs, public opinion and against false prudery in certain quarters.

Primitive and empirical medicine has been in use all over the world. Not only have we Vaid and Hakims in our country, but the same had been in existence in some form or other everywhere. It is the general

disposition of any established community to adhere to forms and traditions long after their survival value has disappeared. But, while the advancing countries have got over it by accepting the proved facts of science, we are still sticking to our old systems. Apart from the natural tendency of sticking to magic and tradition, we adore everything that is old, traditions of all the past generations weigh like nightmare on our thoughts. Traditions must mould with change of environment, blind adherence will cause disaster and destruction, if not extinction.

Why do otherwise intelligent people accept this strange heap of mental corruption? They accept it simply because it was there before them and because it existed before they did. They grew up to it and saw it everywhere accepted and treated with respect in the world about them. To turn from active questioning minds to the company of the faithful is inexpressively comforting.

(ii) *Religion and Medicine* "Indian culture is deeply imbued with philosophy and that is why not only illiterate villagers but highly educated men sometimes prefer the indigenous systems to scientific medicine and rise to their defence. They claim that, the medicine which came from the West is too mechanical, that it is soulless, that it has no philosophy, that it is foreign to Indian thought, while the indigenous systems are deeply rooted in the religious and philosophical traditions of the country, and represent one aspect of the general attitude towards nature and men.

"The indigenous systems of medicine, both Ayurveda and Unani are strongly philosophical in outlook. The theory of the three elements in one, of the four humours in the other, are attempts to visualise the organism as a microcosm and to place it into relationship of the macrocosm of the universe. Hindu philosophy as it crystallised in the system of the Tantras, looks at the human body and the universe as a manifestation of divine substance and energy, a concept the elements of which can be traced back to Vedic traditions. The three elements wind, bile and phlegm are symbols of the aerial, fiery and liquid forces of the life energy. Throughout its history Ayurvedic medicine was an attempt to interpret the phenomena of life and death of health and disease philosophically.

'Unani medicine on the other hand, through the Persian and Arabic traditions goes back to Galenic, Hippocratic and Pythagorean views and having passed through the filter of Avicenna it acquired many elements of Aristotelic philosophy' (Sigerist—Bhore Committee Report)

Sickness and death have always been with mankind. The facts were so tragic that for comfort, he sought prevention and cure. Thus medicine very early in the history of mankind became a branch of

magic Magic is the basis of the thought system which is still with most of us Magic and its evolution, medicine, are very closely associated with Fear—the fear of the invisible is the fuel of all religions, so these three, medicine, magic and religion are very intimately associated and connected with each other in our everyday life These must be separated as distinct social processes In this country religious fanaticism and unreasonableness have greatly helped the perpetuation of quackery

Not only in India but every country on the face of this earth had had some or other primitive form or cult of medicine In all progressive countries this has been developed on further facts by experience and truth from scientific discoveries, whereas we are still sticking to the ancient, just because, it is old, without any purification gained and proved by scientific facts No doubt there have been exponents, and very successful exponents of these systems of medicine, but so have the sorceress the witch, and the Ojha from time immemorial, and that is not enough proof that their methods are the best, and that the innocent public should not be protected from their clutches What we refuse to take into account is that 2000 years have passed since these methods were introduced and that the world has advanced 2000 years since then and made millions of new discoveries The science of modern medicine has been built up piece by piece through centuries on the definite structure of facts No longer a medico religious attitude should be taken towards disease, but it must be recognised as a series of physical phenomena subject to natural and discoverable laws, and can be most successfully dealt with by modern medicine, although its sphere at the present moment may be limited

(iii) *Indian Nationalism* Foreign domination has made us so much averse to Western and modern ideas, that we unreasonably detest them It is like a red rag to a bull It has produced something like allergic hypersensitiveness in us and we react violently to anything foreign to the sentiments and traditions of the country, often most unreasonably This sensitivity of the masses is now being fanned by the politician and other interested parties for their own benefit They are veritably exploiting the situation to their own advantage

Politicians need new stunts to keep themselves in the public eye. With the attainment of independence, many of the mediocre people have come to the forefront The struggle is over the sacrifice and tribulations which kept them in the fore front, are no longer required For the mediocre there has been a dearth of material to keep the eye of the public gazed on them so some are changing their motor car number plates to Hindi characters others are adding 'Shri' to their names and considering themselves great patriots and nationalists And unfortunately these ancient systems of medicine which has great patriotic,

nationalistic and religious appeal to our people, have been chosen as one of their props. So the mediocre politician who has to keep playing to the gallery is making a big case out of this, and he thinks that by decrying the so called Western system, he will appeal much more effectively to the sentiments of the people and pose himself as a great patriot and nationalist. These are exactly the people who will shout down the so called Western system, but will rush for the allopathic doctor when he himself or someone in his family is ill or injured.

Truth is universal and cannot be limited by national boundaries. Facts, specially those relating to the care of sick and suffering, are property of mankind. Drugs, and, or Systems which can ameliorate the suffering of mankind must be shared by all. If we deny these to our people, we will be the only people who will suffer. It will be the greatest calamity to our nation and our people if we or our leaders deny our people means by which human misery can be prevented, checked or cured through sloppy sentimentalism, personal interests or ego.

(11) *Economic Condition of the People* Most people patronise the indigenous system as the Modern medicine does not reach them. Many of our politicians to day are arguing that the indigenous systems are cheap, the poor can afford it. Cheap is certainly not the best. There could be many things cheaper but that does not necessarily mean that those are better for the cure of the sick.

After years of struggle we have gained our independence. Even now if we produce this argument that because it is cheap so our poorer people must have it, there cannot be anything more shameful. Because a man cannot afford to pay for saving his life, he must be satisfied with any cheap thing, which is useless for him. It is the argument of the defeatist, who, because he cannot think of a better system of medical relief, insists that the poor will have to do with third rate drugs which may be ineffective. Our politicians instead of trying to improve the method and system are inducing the people to adopt useless methods, because introducing a system of medical relief by which everybody rich or poor can get the best possible treatment by paying according to his income is far too complicated and intricate a business to evolve. It is too much, in spite of the recommendations of the Bhoré Committee, so the short cut is there. Use indigenous system, and feel proud of your ancient culture, does not matter if you be crippled or die.

Although we may be handicapped by the financial conditions, with proper planning and adjustment, the standard, quality and quantity of medical relief can be much improved. Provincial Governments now represented by popular ministry, are not only averse to take any action in the right direction but some are actually encouraging the practitioners of indigenous system in the belief that by this act

of theirs, they are restoring the old culture of the country and helping the rebirth of a national system of medicine, probably under the urge of patriotism or nationalism. This false sense of patriotism pervades the whole country, and as has already been shown, is the back ground of the support of indigenous systems.

(v) *Low Standard of Scientific Medicine as practised in the Country.* The other reason which has helped the indigenous systems to flourish is the low standard of scientific medicine available for the masses. Hospital is fundamental in modern medical relief. The hospitals in the country are poverty stricken, badly equipped, afford bad service none or very poor nursing and very poor standard of surgical work. Unless the hospitals are improved and unless we can show better results in our hospitals why should people discard the time honoured systems of medicine and take to some thing else which may be equally bad?

The standard of (scientific) medical work is much poorer than in most other countries which have adopted the so called Western system. This is due to poor training of the medical student and poorer still of post graduate and practical work before he actually undertakes to treat a patient in private. Unless and until we, by our results show the superiority we claim, why should anyone allow himself to be treated by us? The general standard of medical work must be improved.

If it is agreed that we must preserve the indigenous systems as achievement of our forefathers, as a landmark in our ancient culture and glory, but it is not for the best of the people of the country to maintain these systems of medicine for prevention and cure of sickness, what should we do? Our object should be (a) To retain old culture and (b) to find out those drugs and methods which will be useful to mankind.

(a) To retain our Culture. Sigerist (in Bhoze Committee Report) suggests that a chair of history of Indigenous Medicine should be included in the future Indian Medical Institute, who will conduct research in the indigenous systems and co ordinate it with other old systems of medicine. "The history of medicine is both history and medicine. It is a historical discipline like the history of art or history of philosophy. It helps to give us a more complete picture of the history of civilisation, because it is obviously not unimportant to know what diseases affected the people in the past, what they did not protect and restore their health and what thoughts guided their action.

' But history of medicine is also medicine. By analysing developments and trends it permits us to understand a situation more clearly and to act more intelligently. We all know that success or failure of our medical work depend not only on the scientific knowledge we possess but also on a great variety of other non medical factors—on economic, social, religious, philosophical political factors that are the results of

historical developments Unless we are aware of them and understand them many of our efforts will be wasted

"An Institute of the History of Medicine in India will devote its researches primarily to the History of Indian Medicine, and of medicine in India from the Vedic period to our days It will investigate the medical heritage of the country dispassionately and critically, not in order to prove a point It will endeavour to reconstruct and envisage the medical past of India from the perspective of history, in relation to and as part of the general civilisation of the various periods "

Undoubtedly there is certain amount of truth and some good and beneficial remedies in these systems, we must not lose them Researches in the Calcutta School of Tropical Medicine have, already, more or less sorted out the more useful drugs in these systems Further research and experimentation in some recognised hospital under controlled condition is necessary

Medical relief is now in the hands of a popular ministry "The first consideration of an enlightened statesman should be the health of the people" (Disraeli) With a popular ministry the minister usually adopts a policy of complacency, not to disturb the public feeling, however detrimental it may be in the long run But it must be realised that, any reform worth it will always be resented in a country with ancient tradition and culture Any minister worth his name should realise that he has to create his own position and men who create their own positions will say and do things which are not necessary for those for whom positions are provided and as such the worthy ones should be strong enough to do things against the popular wish if necessary, if they think what they are doing is for the good of the people They must have the courage of conviction to do what they consider right, although this may be resented by short sighted people, or people with personal motives Nearly all measures of social reform had been resented by the people when first introduced though this proved to be of immense benefit and value to the society in the long run For the benefit of the society they may have to take action against the will of the multitude These are the very acts that immortalise a man and his actions, and not those which make him a party to the blunders perpetuated through centuries

So we must organise the system of our medical relief so that the best is available to all our people, poor and rich, and not remain complacent because of the fact that, the indigenous medicines are cheap and easily available and so they are good enough, and worse than that, is the effort to perpetuate these wornout systems for the benefit of interested persons and politicians who are parties to these nefarious propaganda by appealing to the best sentiments of our people—Indian culture, nationalism and patriotism.

Summary

1. The indigenous systems must be preserved and explored by research and retained as our historical and cultural attainments
2. Those things which are useful in the systems should be explored by research and experimentation and included in "Indian Pharmacopoeia"
3. Modern medicine must be made available to everyone irrespective of costs and the standard of medical relief must be improved
4. Indigenous systems of medicine as it is generally practised to day should be banned by legislation for treatment and care of the sick and relegated to our cultural museum

 APPENDIX C. 3

 MEMORANDUM ON THE INDIGENOUS SYSTEMS OF MEDICINE IN
 INDIA BY DR ISWARIAH PROFESSOR OF PHARMACOLOGY
 ANDHRA MEDICAL COLLEGE VIZAGAPATAM

The expressions, indigenous system or Indian system or Ayurvedic system of medicine definitely connote something different from another system be its name Western system or modern system or scientific system of medicine. Such a concept is inimical to the fundamentals of science which is one. The basis of truth, whether established or in quest, is unity. Plurality is possible here, if it is possible to establish an 'omnipotent diety' of an Eastern or a Western brand. If the existence of a diety is accepted, that diety can only be one. Theories and hypothesis could be coloured by Eastern or Western mode of thought, but science which is truth cannot be diverse. The diagnosis and the treatment of disease are based on science and hence there can only be one form of science.

Arguments for the retention or the encouragement of indigenous medicine are based on the following considerations: (1) the hold that the indigenous system has on the masses and even classes, bearing the stamp of 'intelligence', (2) the system is cheap, (3) empiricism still holds a large place in the so called scientific system and (4) they are divinely inspired, being mentioned in the Vedas etc.

These reasons applied with equal force to the Western or scientific system till the middle of the 19th century. The rapid advance of science

from that time onwards in microscopy, chemistry, physics physiology, to mention only a few, has placed knowledge on a new footing since the middle of the 19th century. Prior to that period even medical science was based on metaphysical speculations. Different systems are only possible when anything is based on philosophic concepts or metaphysical discourses. Science does not brook fragmentation into them.

Discoveries in one science have their effect on all others but with necessary adaptations. No system of medical treatment which is static in conception and practice can hope to give the best available aid to those who seek it.

These are but truisms and that the 20th century India still needs these homilies almost 'ad nauseum', is a sad commentary on the state of affairs.

As in China and Japan, it was pointed out by the Bhoze Committee, that a moratorium extending to a definite period of years has to be declared after which the practice of the systems other than the one world wide science of medicine should be stopped by legislation. After adequate instruction in the modern methods of diagnosis and treatment members of the so called Indian systems of medicine could be absorbed into a unified system.

I have known practitioners of the Indian systems of medicine using Sulpha drugs. Thereby they reveal flexibility and adaptability.

Drugs used by the indigenous medical practitioners should be tested and dealt with according to the modern knowledge of pharmacology. Chairs for History of Medicine in the medical institutions should include a study of the various systems extant or even extinct in India to portray the evolution of concept and thought.

Medical Science in the words of Clark should "always be ready to investigate claims that can be confirmed or disproved by observation, irrespective of the question as to the possibility of truth of the theory which led to their discovery. The reverse is also true that there is no necessity to accept an improbable theory merely because it has led to the discovery of facts of value."

If the enlightened public opinion in India is for the continuance of the Ayurvedic system of medicine, it is a proof of the existence of a subconscious feeling that the disease and death or semi sacred subjects that could be dealt with by authoritarian rather than rationalist methods. Ayurvedic medicine to modern medicine is as astrology is to astronomy.

Statisticians tell us that the popular beliefs are usually two generations behind the scientific knowledge. Copernican theory was accepted haltingly two generations or more after Ptolemaic earth centred solar system. Therapeutics was placed on a scientific basis less than a hundred years back. Are we now experiencing the birth pangs of a new era?

APPENDIX C 4

MEMORANDUM ON THE INDIGENOUS SYSTEMS OF MEDICINE
 BY DR D N BANERJEE M B (CAL) M D (BERLIN) PRO-
 FESSOR OF PATHOLOGY CARMICHAEL MEDICAL
 COLLEGE CALCUTTA & CO OPTED MEMBER OF
 THE GOVERNMENT OF INDIA COMMITTEE
 ON INDIGENOUS SYSTEMS OF MEDICINE

*1 Provision for Research in and the Application of Scientific
 Methods for the investigation of the Indigenous Systems of Medicine*

Introductory

We must, first of all, know, from first hand experience what there is, and what there is not in Ayurveda. Before that, to complain of imaginary wants or press exaggerated claims will not be wise. The real worth of Ayurveda must be assessed first.

It is a known fact that Ayurveda has passed through serious phases of degeneration and tribulation during the last 400 years or more. We must not take that into our account in our present task, as it is the inherent business of the eternity of time to cause change and this is true not only of a particular science but also, all phases of creation as well of nations, empires etc. We must, also, not be carried away by sentiment as regards the past glory of Ayurveda although every Indian should rightly feel proud of it. We must restrict our study to the extent Ayurvedic literature available to day, and not what she had at the time of her glory.

It is my firm conviction that the literature available in the present is still very rich and the basic medical sciences viz, chemistry, physics, biology, anatomy, physiology, pharmacology and pathology, with which we are particularly concerned at the present moment, can undoubtedly stand the scrutiny of the modern sciences.

The statement of the Indian Medical Association, in their memorandum to this Committee, that 'Ayurveda of to day has got no scientific surgery, midwifery, gynaecology, pediatrics jurisprudence hygiene pathology bacteriology etc and it has neither scientific anatomy, physiology pharmacology nor physics chemistry and biology' is absolutely unwarranted and reveals gross ignorance of the subject by the framers of the document.

The Scheme for Research

The first line of research should be one in which Ayurveda will be made up to date on pure Ayurvedic lines of approach and that, not, by

the process of amalgamation or synthesis but by a process of vital absorption of material from all other systems of medicine

All the Ayurvedic materials must be collected, correlated and integrated with those of modern science as also Unani and Siddha systems, in terms of Ayurvedic line of approach. This integrated material must then be absorbed and assimilated into Ayurveda as is the rule with every branch of science. Ayurveda, thus, will be made up to date and text books prepared under each subject. The Ayurvedic line of approach in which researches are to be carried out, in order to make Ayurveda up-to-date, should be the following :

1. The Panchamahabhuta theory—the fundamental principles of basic sciences of the Hindus.

2. The Tridosha doctrine—the basis of all branches of Ayurveda.

3. Correlation and interpretation of terms as used in Ayurveda Sharira to that of modern anatomy and physiology.

4. The Rasa-Veerya-Vipaka theory—the basis of pharmacology.

5. The theory of chaya-prakopa prasara, dosha dushya union—the basis of pathology and clinical medicine.

6. The theory and practice of methods (drugs-diet actions) leading to dosha dushya disunion and maintenance of equilibrium of the doshas—the fundamental principles of therapeutics

With a view to achieving this.

(a) Competent workers are to be engaged to search the extant Ayurvedic literature in all its divisions. They will collect, classify, rearrange and interpret the findings properly and reorient them on modern lines.

(b) this integrated knowledge may then be utilised in preparing text books on anatomy, physiology, pathology, clinical medicine, surgery, gynaecology, hygiene and preventive medicine, medical jurisprudence and toxicology. The details of the descriptive anatomy and experimental physiology and pathology which are not present in Ayurvedic literature may be suitably assimilated as such

(c) a central pharmacy is to be established and competent workers engaged to find out the methods of (i) obtaining crude drugs, (ii) preparation of drugs, (iii) standardisation of drugs with a view to find out therapeutic and lethal doses of preparations in use, (iv) assaying the rasa, guna, veerya, vipaka and prabhava of known drugs and to apply the same on drugs unknown to Ayurveda e.g., cinchona, sulphonamides etc

(d) Workers are to be engaged in order to reorientate the method of case taking on Ayurvedic principles and collate and correlate the Ayurvedic clinical medicine with that of modern sciences. The third eye of knowledge (in terms of the Indian Medical Association) namely,

the measures for temperature, blood pressure, etc., the x rays, the microscopes, the stethoscope, the endoscopes, and other "scopes" and "meters" "grams" and "graphs" of later invention must also be correlated and interpreted in terms of Ayurveda

Time to be taken to do the Research

Every science grows and grows by research and that the last word in the domain of knowledge can never be uttered. But a minimum period must be allotted to come to an agreed conclusion for the purpose of writing text books so that education may be imparted on right direction which may commence as early as possible

1 Preclinical subjects (i.e., anatomy, physiology, and pharmacology)—My own works on (1) Panchamahabhuta theory, (ii) Tridosha theory, (iii) Ayurveda sharira (Correlation of Ayurvedic anatomical and physiological terms with those of modern science) is now complete. One book (Nervous system of Indian physiology) has already been published and the other book Ayurveda Sharira (Ayurvedic anatomy and physiology including Tridosha) is ready for the press. A committee may be appointed to review this literature with a view to write text books on anatomy and physiology, integrated in terms of Ayurveda

In a properly equipped Research Institute, it should not take more than Six months, to have the basic research, to give sufficient material to write text books on pre medical and pre clinical subjects. A two years research will enable these subjects to be made complete and up to date, to the standard of teaching equivalent to the M B B S. course

2 Nidana (pathology and clinical medicine)

I have done some special study on this subject and have published several papers. A vast amount of material exists at the present moment in Ayurvedic literature, but, it is very widely dispersed in different treatises and in different chapters of the same treatise

(a) In Pathology, morbid anatomy and morbid histology shall have to be added. But there is ample scope to correlate these findings with the basic principles of Ayurvedic line of approach

(b) Clinical Medicine—The fundamental materials are already there. They can be very easily correlated and integrated on the lines elaborated in Savill's Clinical Medicine and French's Differential Diagnosis

(c) The so called third eye of knowledge may also, be correlated and integrated in terms of Ayurveda. A period of two years may be taken to enable text books to be written and five years to make it complete and up to-date

3. Theory and Practice of Medicine, Surgery, Midwifery, Hygiene and Public Health, Medical Jurisprudence and Toxicology—a period of 2 to 5 years will be sufficient to write text books on the scientific aspect of these subjects. The art of operative surgery and midwifery particularly the technical aspect of the subjects and such subjects *viz.*, anaesthetics, orthopedics, venereology, radiology etc., shall be those of modern developments and incorporated into Ayurveda as such, until they can be assimilated, absorbed and integrated in terms of Ayurveda. This may take a period of ten years or more.

We may consider the other side of the shield at the same time. The modern science in order to be modern, studies and incorporates in its corpus the truth whatever might be its source. The Panchamahabhuta theory; the fundamental principles of basic sciences; the Tridosha doctrine—the basis of all branches of Ayurveda; the rasa-veerya-vipaka theory—the basis of pharmacology; the theory of chaya-prasara-prakopa, dosha-dushya union, the basis of pathology of diseases and the theory of dosha-dushya disunion and maintenance of equilibrium of the doshas as the fundamental principle of therapeutics, are bound to be studied by world scientists and I visualise that, a day will come, and that within a period of 10 years where the Tridosha doctrine of Ayurveda—not the humoral theory of the Greeks—will dominate over modern conception of pathology and clinical medicine, just as bacteriology has played the greatest role on etiology and preventive medicine and antibiotics on therapeutics. One may rightly dream that Ayurveda is destined not only to be Indian system of medicine (by integration, absorption, fusion, or synthesis) but an international system of medicine.

II. Teaching

The teaching imparted today in the teaching institutions throughout India is far from being satisfactory. In most of them, it is hopelessly below the normal standard and many of the institutions are not fit to be called teaching institution on account of inadequate teaching staff and equipment. Furthermore,

(1) The qualification for admission of student is low.

(2) The student is supposed to learn all the subjects of modern science (and probably of the same standard as M.B., B.S. as the syllabuses of the institutions show) *viz.*, chemistry, physics, biology, anatomy, physiology, pathology, medicine, surgery, etc., as also the whole of Ayurveda as embodied in Charka, Susruta and Vagbhata Samhitas, which is an impossible task even for the best teacher, not to speak of the student with very low entrance qualification.

(3) The inherent difficulty and inability on the part of the teachers to correlate the Ayurvedic terminology (anatomical, physiological, pharmacological, pathological, clinical etc) with those of the modern science

(4) Absence of adequate text books in any Ayurvedic subject The original treatises, the Charka and the Susruta Samhitas are written in the form of discourses between the teacher and the pupil The matters, thus, are interspersed in many chapters of each section or many sections of the same Samhita No subject has been described complete in any book One must search all the original treatises, the compilations e.g., those of Vagbhata, Madhava, Chakrapani etc, as also the commentaries, to get the complete Ayurvedic material in any subject These Ayurvedic books, thus, are not suitable as text books according to our modern conception They should only be used as reference books

(5) The result of the above teaching is deplorable The student learns neither modern science nor Ayurveda, rather more of modern science than Ayurveda and on becoming a practitioner, he practices more of modern science (giving injection etc) than Ayurveda

(6) After studying for five years, the student finds no prospect of employment in Government, district boards or other local bodies in their health schemes

We may, again, consider the other side of the shield In spite of all these drawbacks—*inadequate equipment of the institutions, inadequate teachers, inadequate text books, inadequate entrance qualification and the absence of any prospect and recognition*, the Ayurvedic practitioners command a good practice and that also, in competition with all the ranks of the practitioners of modern science If we take any 100 Ayurvedic practitioners (passed out of an institution) of any area and 100 registered doctors of the same area—be it rural or urban—one may not find much difference in both these groups of general practitioners On the highest rung of the ladder an Ayurvedic practitioner, often commands higher fees than the best specialist of the modern science

What is this due to? The science of Ayurveda, although decadent to day, still contains ample dogmas which safely carry the practitioner to show good effect They are, however, *extremely handicapped, however eminent they might be, in the following practices*

- 1 Minor surgery and bandaging
- 2 Midwifery
- 3 Public Health work

A Scheme for the Teaching of Ayurveda

In future, there shall be no mixed teaching, half Ayurveda and half modern science, or some chapters from Ayurvedic texts and some

chapters from modern science, as is in vogue, at present. The present system of teaching must be replaced by an integrated system, in which Ayurveda will be made up to date on pure Ayurvedic lines of approach and that not by the process of amalgamation or synthesis but by a process of vital absorption of material from all other systems of medicine.

The present system of teaching in which a doctor, innocent of Ayurveda, teaches the modern medical science and an Ayurvedist, equally innocent of modern science, teaching the corresponding Ayurvedic literature, leaving the task of collation to the immature brain of the students, must be stopped forthwith.

Courses of Study

I like to propose 4 different courses of study of Ayurveda, viz., (1) Graduate or University degree course, (2) diploma course, and (3) refresher course to utilise the existing practitioners in health services as an immediate measure, and (4) the post graduate or teachers' course. There may not be any contradiction with respect to the last two courses, but contradiction is inevitable with respect to the first two courses—the degree and diploma courses—and may be called a retrograde step when the policy of the Government and the opinion of all shades of medical practitioners to have no caste system amongst medical practitioners (graduates and licentiates), and as a matter of that all medical schools have already been abolished throughout India.

There is, again, the question regarding the possible difference in the standard and teaching as well, on the utility and relative advantages of having two different standards the degree course as distinct from diploma course. This caste system is necessary from two different point of view.

(1) As a temporary measure during the interim period, until the requisite number of medical practitioners come to satisfy the requirements, suggested by the Bhoré Committee. When this number is achieved,—say in the course of ten years or earlier (which period is extremely small in the history of a nation, particularly that of India)—start by abolishing the recruits of the third category and then those of the second when there will be only category left, and by that time, the Ayurveda is expected to be resuscitated, reoriented and made up to date, so as to be of the same standard as the modern science of the day, thus evolving one system of medicine in India by the process of assimilating all the medical systems of the world.

(2) Until the economic and social condition of village life are changed, so that a medical graduate can get sufficient attraction to settle in village practice and get ample compensation for his expensive

university education he has already secured and day today amenities of modern social life, proper education of their children etc etc The details of these courses of study are given below

Degree Course

It is admitted on all hands that the standard of medical teaching shall be that of M B B S, of our universities This applies to Ayurveda as well As the teaching facilities, at the present moment, are inadequate with respect to Ayurveda, it must be raised to that standard in all subjects in the course of 5 years at the most The Government—both central and provincial—as well as the universities, must start work in right earnest to achieve that end

I may venture so far as to say that research institutes should be established first and colleges only when basic researches have been done and sufficient text books published embodying the recent researches, *which will enable the teachers to give a real and sound teaching based on experimental facts* Ayurveda will then, be able to stand any scientific test and scrutiny That will possibly be the only method by which the standard of teaching in Ayurveda may be raised to that of the colleges teaching modern medicine

New institutions may be established and the existing ones re organised, so as to be competent to teach Ayurveda in all its branches. But it must be imperative, that in course of five years or so, all of them must be capable of being raised to the standard and equipment of medical colleges affiliated to the Universities From this point of view, no existing institution need be recognised which are ultimately incapable of being raised up to the adequate standard

Details for the degree courses viz, (a) entrance qualification, (b) period of study, (c) subjects to be studied, (d) syllabus for each of these subjects (e) practical training and the condition under which such training is given and (f) qualifications of the staff, have been submitted by me to the Madras University, which is annexed herewith as appendix

Diploma Course

It has been estimated that more than 90% of India's population live in villages and more than 80% of India's population does not get any advantage of medical relief offered by the modern medicine The third eye of the modern knowledge, is accessible, only, to 5% of them *i e*, the urban population A vast majority of these, again, cannot afford to get the benefit of the third eye due to the cost which is far beyond their reach Popularity of the Ayurvedic system,

to the main bulk of India's population—urban and rural; poor and rich—is also an established fact. But there is no denying of the fact that there exists a great difference of medical practice in the rural area when compared to that of the urban. The requirements of medical aid in villages is not the same as in the cities. This is particularly true with Ayurvedic practitioners where crude raw drugs in the form of herbs, either fresh or dried, form the main bulk of therapeutic agents. In the city the practitioner has got to deal with multifarious diseases, while in village he has to treat only some common diseases. In the city, the physician has to depend on prepared medicines and no fresh herb become available, so he forgets the art of the identification of the medicinal plant. In the village, fresh herbs are easily available and that in plenty, and that is the reason why prepared medicines are not in common use and it makes a vicious circle, in that, the infrequent use of prepared medicines leads to their deterioration for having been kept for a long time and this deterioration leads to less demand for them. On the other hand, the medicines cannot generally be made available in the village and if available the people cannot afford to buy them.

As there exists gross difference in the medical practice in the city and the village, so there must be difference in the medical education for the practitioners settling in the cities and villages. Physicians meant for the villages must have:

(1) cheap and easy education (a three-year course) to attract them to the rural area. A high standard of training (University degree course of 5 years) will not attract them to the village life. As it is, the duty of the State to provide medical aid to all—rich or poor, villager or city dweller—this appears to be the best method by producing a large number of physicians who would prefer to settle in the villages;

(2) a thorough knowledge of some two dozen diseases commonly met with and not all the thousands of diseases a degree course student has to learn;

(3) a training of technical details of major surgery, descriptive bacteriology, descriptive normal and morbid histology, descriptive anatomy etc., are not required;

(4) they must possess a good knowledge of common diseases; preventive hygiene, preventive medicine, and herbs available—their identification and their uses;

(5) the syllabus will, thus, be more of applied anatomy, applied physiology, applied pathology, clinical medicine etc., and less descriptive. The teaching thus shall be less didactic and more applied. And above all, the standard of education, imparted by all the Ayurvedic institutions throughout India, even in their 5 year course, is so low when compared with the 5 year course of medical colleges, that I feel that it is sheer

wastage of time, energy, and money on the part of the Ayurvedic students. Much better education can be imparted in the course of 3 years.

I may recommend that until (1) adequate text books to impart high standard of education, (2) competent teachers with adequate post graduate training, and (3) adequate equipments for imparting education of the degree course are available, the syllabus shall, appropriately be reduced to 3 year course and that of the diploma.

Details of the Diploma Course in Ayurveda

(a) Entrance qualification That he has passed the Matriculation examination or any other examination equivalent to the Matric standard with Sanskrit, hygiene and elementary science.

(b) Period of study—3 years

(c) Subjects to be studied Principle—In the degree course, the subjects to be studied and their standard depends on the principle, that after the graduation the student should be competent to take post graduate course in any medical and allied sciences and become specialist in that line. For this reason, the foundation consists of strong knowledge of basic premedical sciences, pre clinical subjects, first floor of clinical subjects and several superstructures of special subjects, making so many specialities.

The diploma course, on the other hand, is only a one storeyed building, for the general practitioner, with a strong knowledge of clinical subjects. The strength of the foundation i.e., the syllabus of the pre clinical subjects (anatomy and physiology) will depend on the bare requirements which will enable the student to follow the clinical course and not a strong one to carry a very heavy superstructure. The study of the elementary sciences and hygiene of the Matric standard, will be quite sufficient foundation for the pre medical subjects.

We may consider this in a different way and that in comparison to the course of studies of our medical colleges.

(1) In the clinical course, the students learn (1) Pathology, (2) Medicine (3) Surgery (4) Midwifery, (5) Forensic and State medicine, and (6) Public Health and Hygiene in the course of 3 years. Comparing the corresponding subjects in Ayurveda, the vast amount of descriptive and technical details of the following subjects which the students learn for M.B. examination, is non-existent in the Ayurvedic course of study. These subjects are in (1) Pathology, Bacteriology, Immunology, Clinical Pathology, Chemical Pathology, (2) Clinical Medicine and case taking, diseases of children, Tuberculosis, Venereal diseases, skin diseases, infectious diseases and Psycho Pathology, (3) art and practice of Surgery—major and minor, Radiology, Orthopaedics,

dental diseases, surgical diseases of infancy and childhood, Ophthalmology, diseases of ear, nose, and throat (4) Obstetrics and Gynaecology, (5) Forensic and State medicine, (6) Public Health and Hygiene.

Thus, this period of 3 years for the M.B. course may rightly and profitably be reduced to 2 years for the Ayurvedic students. The sooner it is done the better for the students and all concerned.

(2) In the Pre-clinical course: In comparison to the Ayurvedic students, the M.B. students study vast amount of (1) descriptive anatomy, including embryology, (2) histology, (3) experimental and descriptive physiology including biochemistry, (4) pharmacology, materia-medica, (5) organic and toxicological chemistry, which are non-existent in Ayurvedic course and that in the course of 2 years. For Ayurvedic student this can very profitably be reduced to one year.

The Syllabus

First Year:

1. Sanskrit—Sufficient to be able to follow Ayurvedic sutras, the main training being given in the provincial language and new text books.
2. Ayurveda Sharira (Anatomy and Physiology)—Including dosha-dhatu-mala Vijnan collated and integrated in terms of modern science.
3. Ayurvedic pharmacology and materia-medica.
4. Panchamahabhuta tatwa and purusha vicaya (no examination on these subjects).

Second and Third Year:

1. *All the clinical subjects:* The subjects to be taught more in their clinical application as applied sciences and particularly suitable for rural practice. The diseases required to be handled by the rural practitioners must have special and more thorough consideration.
2. Forensic and State-Medicine, Public Health and Hygiene, as required for rural practitioners.
3. History of Medicine, life insurance, Social Medicine, Medical ethics etc., (No examination on these subjects).

Refresher Course

Attempts are now made to find possibilities of utilising the existing vaidya's as an immediate measure, in any composite scheme of health service in rural areas. I may submit the following programme for this purpose.

Just as an ordinary member of the public, having no previous training in medicine, can get training and official recognition as compounder, dresser, dāi or sanitary inspector, an Ayurvedist, with knowledge in the art of healing is better equipped for the study of these subjects and when given special training will undoubtedly be able to handle minor surgery, midwifery and Public Health work more efficiently

As personnel to the existing hospitals the most suitable young vaidyas of to day, who might be competent to take charge of hospitals after a further training, may be selected. They may be given a refresher course for 6 months particularly in surgery, gynaecology, hygiene and preventive medicine, medical jurisprudence and toxicology and put in charge of hospital duties. They must have practical training on operative surgery on the dead body, operative midwifery on dummies and minor operation on patients.

When placed in charge of hospitals as surgeons, they must be put as assistants for about 2 years and then put in independent charge

The Syllabus

Entrance qualification A passed student from an institute recognised by the Ayurvedic Councils of Registration of different provinces or states

Period of study—6 months to one year

Subjects to be studied

1 Infection and infectious diseases (particularly malaria, dysentery, typhoid, tuberculosis, cholera, small pox and other common diseases)—their etiology, pathology, treatment and prevention

2 Minor surgery and bandaging—sepsis and asepsis, treatment of abscesses, infected wounds haemorrhages, fractures and dislocations, burns, shock and collapse, extraction of teeth, removal of foreign bodies catheterisation for retention of urine, injections (subcutaneous, intramuscular intravenous) including administration of saline, paracentesis and aspiration, reduction of hernia etc

3 Use of common instruments e.g., stethoscope, sphygmomanometer, stomach tube, flatus tube enema, vaginal douching and plugging

4 Management of pregnancy, labour, care of the baby (pre natal, natal, post natal) gynaecological bleeding early diagnosis of cancer uterus

5 Treatment of poisoning, drowning, suffocation, asphyxia, and their medico legal significance

6 Vaccination, mass inoculation, rural public health problems.

Post-Graduate or Teachers Course: This can only be undertaken when sufficient researches have progressed and suitable text books prepared.

III. *The desirability of State Control of the practice of Indigenous Systems of Medicine*

There must be uniform standard of teaching and examination all over India. Indian Medical Council must take the responsibility for the control of teaching, examination and practice of Ayurveda.

The present state of affairs, although being regulated by the State Faculties for the Ayurvedic system of different provinces, in which an extremely substandard education is being given to the students making them completely unfit to be responsible for the medical and public health work of the country, must be stopped as early as possible.

IV. *Whether synthesis can be made of all systems in one all comprehensive one*

Just as truth, wherever it may exist, is always the same by whatever name it may be called, similarly the medical science is always and everywhere the same, by whatever system it may be labelled. The difference in the systems lies, not in the substance but in the line of approach only.

Charaka says, that physician who knows the body in its entirety, as it is, at all times and in every respect knows the science of life in all its details the science that is productive of great happiness to the whole world.—C. Sh. 6/12.

Susruta says, a physician well versed in the principles of the science of medicine (Ayurveda), but unskilful in the art through want of practice, looses his wit at the bedside of his patient, just as a coward is at his wit's end to determine what to do when for the time he finds himself in the ranks of a contending army. On the other hand, a physician experienced in his art but deficient in the knowledge of the Ayurveda, is condemned by all good men as a quack and deserves capital punishment at the hands of the king. Both these classes of physicians are not to be trusted, because they are inexpert and half educated. Such men are incapable of discharging the duties of their vocation, just as a one-winged bird is incapable of taking flight in the air. Even a panacea or a medicine of ambrosial virtues administered by an unpractised or ignorant physician, will prove positively baneful as a draught of poison, or a blow with a weapon or a thunder-bolt. A physician, ignorant of the science and art of surgery and emollient measures (sneha-karma) etc., is

but a killer of men out of cupidity, and who is allowed to carry on his nefarious trade only through the inadvertence of the king—S S 3/16 '20

There is, thus, no bar in having one all comprehensive system. The difficulty is only to correlate the different lines of approach. A scrutiny will show that the principle lines of approach is the same in Ayurveda and modern science unlike that of homeopathy.

The difference lies only in details and that, again, due to the somewhat static condition of Ayurveda during the last 2 or 3 centuries. I believe this difference can be easily removed, if the Ayurveda is allowed to progress by researches on truth wherever available and intensive searches of what is still extant in present day Ayurvedic literature and made up to date on pure Ayurvedic lines of approach.

One all comprehensive system of medicine—not Indian system of medicine but international system of medicine, can be achieved in course of 5 to 10 years, not by the process of amalgamation and synthesis but by a process of vital absorption of material from all other systems of medicine. This has been elaborately dealt with earlier in this memorandum under the heading "Research."

The history of the cultural heritage of India again, corroborates the same, from time immemorial. Conflicting races, civilisations, cultures, truths—both foreign and indigenous—have come to settle in India in different periods and have struggled to have their strong foothold. They have undoubtedly succeeded partially and temporarily. But India, every time, has ground all of them in her cultural mills and has digested, absorbed and assimilated all of them as her own. Thus India has been able to swallow and absorb all the cultures into one, whether Vedic, Dravidian, Greek, Scythian, Persian, Moslem, Christian etc. This is true not only with religion and society, but also, with science and art. It may be safely expected that cultural heritage of India will similarly absorb the medical truths existing throughout the wide world and in her own turn contribute substantially to the international medicine.

APPENDIX C 5

SOME SUGGESTIONS FOR THE DEVELOPMENT OF INDIGENOUS SYSTEMS OF MEDICINE BY MR C R AIYAPPAN PHYSICIAN SASTHAMANGALAM TRIVANDRUM

Three systems of indigenous medicine are prevalent in Travancore, viz., the Ayurveda, the Siddha and the Unani, of which the Ayurveda occupies the most predominant position, being the system popular

throughout the State. The Siddha system prevails in some parts of Southern Travancore and the Unani among the Muslim population. Despite the numerous hospitals and dispensaries opened and work under the Government agency and under the agency of religious missions for the treatment of disease under the Allopathic system more than 75 per cent of the population of the Travancore State resort to the Ayurvedic system of treatment with firm faith in its efficacy and with a feeling of perfect safety with regard to the after effects of the diseases cured. There are several well known families of hereditary Ayurvedic physicians in the State such as Vayaskari Olappa etc. who have by their deep knowledge of the system and their admirable skill in rightly diagnosing and successfully treating even the chronic cases established an All India reputation. Most people who resort to the Allopathic system of treatment in this State do so only to get temporary relief in acute illness and for permanent cure they resort to the Ayurvedic system. As an Ayurvedic physician of some standing I can say from my own experience that most of the allopathic physicians and surgeons of the country who publicly profess abhorrence of Ayurveda privately consult Ayurvedic practitioners and regularly use for the maintenance of their own health and vigour Ayurvedic preparations such as tailas lehyas arishtas and rasayanas. This shows that even those who practise Allopathy as a profession for earning their livelihood maintain their inborn respect for Ayurveda and cherish an undying faith in its efficacy like the majority of the people.

The great popularity which Ayurveda enjoys is an evidence of the fact that it can successfully treat most of the diseases met with in this country. The critics of the system however eagerly propagate the idea that it cannot cope with the cases of malaria cholera small pox snake bite and bite of rabid animals. This is not true. The Ayurvedic system has very many specifics which can effectively deal with such cases and wonderful cures are being effected throughout the country almost daily. A few years ago an epidemic of malaria broke out in some parts of the Neyyattinkara taluk (Trivandrum). Thousands and thousands of persons were affected by it and the Government found it impossible to cope with the situation with the existing number of allopathic doctors. Out of sheer necessity the Surgeon General had therefore to allow a few Ayurvedic physicians who volunteered their services in this connection to carry on their treatment in these localities. The result was that these physicians were soon able to bring the epidemic under and control and reduce mortality to a minimum. It may be particularly mentioned that while cases of relapse were numerous under the allopathic treatment they were almost negligible among the patients treated by the Ayurvedic physicians.

In spite of all this evidence of the efficacy of the Ayurvedic system and its popularity, it has not been possible for its practitioners to get sufficient encouragement at the hands of the Government. It is true that an Ayurvedic department exists. But the funds placed at its disposal are too meagre to enable it to provide sufficient equipment for effective treatment. The medical department of the State is dominated by allopathic doctors and its attitude towards Ayurveda is step-motherly, if not one of open and active opposition. There are also instances of allopathic doctors occupying positions of authority crying down the merits of Ayurveda and condemning it in season and out of season. It was only through the strong agitation carried on through the press and in the Legislative Assembly that the government could, at last be moved recently, to give greater encouragement to Ayurveda. There are at present in the State, as many as 176 Grant-in-Aid Ayurvedic dispensaries and six hospitals. The Ayurvedic hospital and dispensary run directly by Government at Trivandrum are very popular institutions—as popular as the General Hospital itself.

The only argument advanced against the Ayurveda is that it is not a progressive system and that it cannot handle surgical and maternity cases. This is no doubt true. But the fault is not in the system. There have been no facilities for Ayurvedic practitioners to study modern anatomy, and allied sciences or to gain practical experience from hospitals. The study of Ayurveda in the country has been merely from the ancient Sanskrit works. It is only recently that a College has been opened in Trivandrum but here also proper curriculum has not been devised, as a consequence of power being in the hands of persons who look down upon Ayurveda with a prejudiced mind out of sheer ignorance. I can assert with confidence that if proper studies are instituted on modern methods, Ayurvedic physicians passing out of this college after a course of intense theoretical study and practical training will be more popular and of far greater service to the medical relief of our people than the doctors of the allopathic system who are already occupying key positions in the State.

In consideration of the above facts, I beg to offer the following suggestions with a view to affording further help to the advancement of the indigenous system of medicine in the State and elsewhere.

1. Fully equipped colleges of indigenous medicine should be opened in all important centres with facilities for pupils to attend hospitals and see how surgical operations are carried on and the care of the sick taken.

2. Admission to the colleges should be given to students who have had a satisfactory general education and possess a working knowledge of English, Sanskrit and Hindi, besides proficiency in their mother tongue.

It need not be pointed out that a good knowledge of English is essential for the study of anatomy and allied modern subjects. Similarly access to Ayurvedic knowledge can be had only through Sanskrit and to Urdu through Urdu, Hindi or Hindustani is necessary in view of its likelihood of becoming the common language of India. For understanding the Siddha system which is prevalent in the Tamil country, a knowledge of Tamil is, of course, indispensable.

3 A committee of experts in Allopathy and in the different indigenous systems should be constituted, and a curriculum of comprehensive studies prescribed for pupils admitted to the colleges. The curriculum should be so designed as to be exhaustive in its range and to include the essentials and excellences of all the systems including allopathy.

4 The course of study may extend to six years including practical training in hospitals, and a degree in Indian Medicine awarded to successful pupils at the end of the course authorising them to practise medicine and surgery everywhere in India or elsewhere.

5 A herbarium and a pharmacy should be attached to every college so as to enable pupils to identify the several herbs and to gain practical knowledge in the preparation of standard medicines.

6 A Research Laboratory should be established to examine the properties of herbs, with a view to evolving new preparations and specifics. This may work also as an agency for testing preparations and declaring them as valid or otherwise.

7 Practitioners of indigenous systems should be freely employed by the municipalities and rural uplift centres to take an increased share in the medical relief of the people and to eliminate the allopathic doctors in course of time.

8 Ayurvedic hospitals and dispensaries should be established and maintained at Government cost in all towns and important rural areas and medicines supplied to them from a central pharmacy for being dispensed to the people.

9 The poor pittance and petty grants now given to Ayurvedic physicians and practitioners should be substituted by decent and attractive salaries and remunerations so as to do away with the inferiority complex under which they are labouring.

10 The Daivik aspect of the Ayurvedic system including the enhancement of its efficacy by means of mantras and tantras should not be discouraged as it provides a healthy psychological background in the minds of patients favourable to speedy recovery. It need not be emphasised that the Ayurveda is a system offering cure not only to the bodily but also to the mental and spiritual ailments of the people of every country.

APPENDIX C 6

IMPROVEMENT OF THE INDIGENOUS SYSTEM OF MEDICINE
BY ASHTAVAIDYAN VAYASKARA N S NARAYANAN MOOS,
KOTTAYAM TRAVANCORE

I give below my evidence and suggestions for the improvement of the Indigenous Systems of Medicine, on the points raised by the Committee

1 The present state of Indigenous Systems of Medicine in the State is far from being satisfactory. When compared to other parts of India excepting the Himalayan region medicinal plants as also other natural resources make it an easy task for the practitioners of the Indigenous Systems of Medicine in the Travancore State to have properly trained disciples and medical preparations. Still the authorities are not taking keen interest in the development of the science.

2 Even though an Ayurveda Patasala has been started by the Government in 1964 M.E. at Trivandrum it is a regrettable thing to note that the working of the institution is still unsatisfactory and it has not yet developed into a full fledged Ayurvedic college. A few years ago a University was started by the Government. Ayurvedic education has not yet been brought under its control. In 1942 an Ayurvedic Education Committee was formed by the University authorities to report on the desirability and the feasibility of bringing Ayurvedic education under the direction and control of the University. The Committee, after meeting and discussing all the various aspects submitted a helpful report. Unfortunately no one knows why the authorities have not yet taken any step for the constitution of a Faculty of Ayurveda and to bring education in Ayurveda under their control. A University should, no doubt be universal. An institution can only be termed as a University when almost all the various branches of study and research are incorporated in it. The ultimate object of education is knowledge the particular kind of knowledge for devising and developing ways and means for a proper healthy living is Ayurveda which is the science of life. Hence Ayurvedic education should be a part of general education and it cannot be separated. Health education can never be severed from general education which includes the training an individual begins to acquire from the earliest period of his life at home as well as the training he acquires in schools and in latter life. It is only through the practice of a hygienic mode of life that sound and healthy habits can be cultivated.

3 The practitioners of Ayurveda at present take a good and perhaps a very large share in affording medical relief to the people. Recently the Government promulgated an Act called the Travancore

under direct and strict supervision of learned and well educated savants of Ayurveda in suitable and proper places

- (i) First of all Ayurvedic education should be brought under the direction and control of the University, and a Faculty of the Indigenous System of Medicine may be constituted:
- (ii) High grade and well equipped colleges should be established, in each district according to population basis, for imparting both theoretical and practical training in the indigenous medicine
- Research departments with all modern as well as ancient equipments should also be attached to these institutions
- There should be ample provision for library, anatomical and physiological museums as also botanical gardens and a pharmacy, in each of the institutions
- The establishment of a hospital with facilities to admit in patients is also of utmost importance and this will help the students much to acquire practical training in various aspects of medical relief
- (iii) Ayurvedic schools also must be opened in important places so as to enable the students to get sufficient basic knowledge of science before they seek admission to the colleges
- These schools can very well be maintained with less expenditure as compared to the medical colleges and at the same time, will equip the students with all the basic principles of the science, and hence the task of the professors and teachers of the colleges can be reduced to a considerable extent
- But proper selection should be made in the case of admission of the students even to these schools
- Ayurvedic schools should be established throughout the country say one for each district or for a population of half a million of people
- (b) The following measures may be suggested for increasing the usefulness of the Indigenous Systems of Medicine
- (i) Ayurvedic hospitals with in patient and out patient wards to meet all the needs of the general public providing for obstetrics and treatment of children have to be established and maintained under expert supervision and control
- (ii) Health resorts and sanatoriums in suitable places should be established throughout the country with all facilities for admitting in patients under proper control and supervision of experienced practitioners of Indigenous Systems of Medicine
- (iii) Pharmacies for the manufacture of Ayurvedic medicines on a large scale strictly according to principles laid down in the Sastras, have to be established in every district throughout the country.

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Government in various directions for the development of Indian medicine Ayurveda which has rendered centuries of fruitful service and which has deserved popular support can never be ignored in the medical relief schemes of the country including the training of doctors needed for service to the millions in the rural and urban areas. I emphasize that the structure of medical relief schemes so far contrived was unduly dominated by Allopathic system during the years of foreign rule and it should now be reorganised and placed on a truly national basis so as to give it its due place. At the same time we cannot be blind to the advances made by modern sciences and medicine and I wish that the best from the West should be absorbed in the fundamental theories of Ayurveda by a process of integration and Synthesis.

Synthesis of Indian and Western Medicine

The main policy of the L. I. M. Association has been the promotion of Synthesis of the Indian and Western systems of medicine, whose theoretical bearings are, in my opinion, not mutually antagonistic. Consistent with the traditions of the past, I may say that Ayurveda can assimilate, in general, the scientific advances made in Physics, Chemistry, and Medicine, while still retaining its own individuality. It can also supplement its own methods with those of the Western sciences and medicine. A sort of mechanical and blind dependence on laboratory technique has wrought much havoc in the minds of doctors and the patients alike. The powers of mind developed by ancient Ayurvedic Physicians to understand the why, how, and wherefore of things were better guides particularly in diagnosis with clinical methods than the mechanical instruments and laboratories which are now considered by badly advised patients as infallible vehicles for the understanding of truth. The psychological origin of disease now being discovered by modern medicine are nothing new to Ayurveda. There is therefore a great need for not only a synthesis of the systems of medicine but also the *modus operandi* of understanding truth of the Indian and Western sciences.

Medical Education

The experiment conducted at the Government School of Indian Medicine at Madras in respect of integration leading to synthesis of the Indian and Western systems has not only been a success but has also shown the way to the other provinces. At Madras the subjects belonging to both the systems are dealt with by separate teachers and the students are lead, through gradual stages,

Public and Private Medical Aid

Coming to the consideration of the application of the Principles of Synthesis to medical aid administered by the State through public hospitals, and in private practice by doctors it is clear that except in the Government Hospital of Indian Medicine, Kilpauk, Madras it has not been tried elsewhere. I therefore recommend that some Head Quarters Hospitals in the districts and taluks, should be set apart for the use of Ayurvedic cum Allopathic experts, who can by their experiments demonstrate which type of treatment is likely to be more efficacious and useful to the people. In the field of medical aid by private agencies, I may state that all the members of the L.M. Association are good practitioners either way and have been serving the people satisfactorily ministering to the needs of the people as circumstances demand.

Research

Then, in the field of Research which must be undertaken both in the Centre, Provinces and States, I am of opinion that the following aspects deserve consideration (a) Clinical (b) Literary, (c) Drug, and (d) Pharmacological

Clinical Research. One of the difficulties in assessing the real value of Ayurvedic treatment is the lack of proper statistical records regarding various diseases, their treatment and their results. Hence a large number of Hospitals should take up the treatment as prescribed by texts and traditions of Indian medicine and Clinical Research in the principles of diagnosis, methods and lines of treatment should be carried out. The experiments in dietetics too can be conducted together with clinical research. Rural and urban, acute and chronic, new and old diseases, can be thoroughly worked out. This requires workers trained in modern methods who are not prejudiced against Indian medicine and keep their minds open. Some of the members of the L.M. Association are quite competent to undertake this type of work in co operation with other workers in the field and collect accurate results.

Literary Research. A Department of Research dealing with the voluminous literature on Ayurveda—published and unpublished—to unearth valuable knowledge is necessary. This Department should have all the usual sections and also co ordinate the research work done by private bodies and individuals. Further it can collect ancient medical literature now lying moth eaten and scattered in different parts of the country. Publication of good text books in regional language should be one of their important tasks. This will also enable the collection of technical nomenclature and their interpretation.

institutions have to shift for themselves in private practice or accept starvation wages in institutions run by the Governments or the Local Bodies. There being no prospects in life for the products of these institutions, they could not attract, to their portals students of high educational and intellectual equipment!

Now that the country is independent and there are the chosen representatives of the people at the helm of affairs at the Centre and in the provinces and States, it is hoped that the revival of Ayurveda will find a fitting place in the schemes of national renaissance.

Ayurveda is expected to come to its own and prove to be of immense value, not only in contributing substantially to the physical health of the nationals of this country but also in presenting to the people, once again, the correct and the truly Indian approach to life and its varied problems. Given proper impetus Ayurveda can once again take its hallowed role of equipping individuals with the ideal and yet realistic and practicable sense of values for things of this world and bring about the rebirth of a society or community inspired by healthy imagination and constructive ambition.

Every great man of the world has declared on innumerable occasions that the Orient has much to give to the Occident. It is time now that the statesmen of India try to visualise clearly the significance of the magnificent potentialities of their philosophical, scientific and cultural heritage. There is no other branch of knowledge, which can afford so conspicuously the blending of the ideal and the real. All the teachings of the Vedas, Upanishads, Smritis and the Grihya Sutra¹ are given practicable forms in Ayurveda, which bears ample evidence that every individual, in the heyday of this country, followed rules of personal hygiene, which included mental and moral codes of life of a high and yet practical order.

The goal set by Ayurveda thousands of years ago rings true even today. It aimed at Hitayushatva and Sukhayushatva (Blissful and useful life for the individual and society). Charaka defines the goal of Ayurveda thus —

१. हिताहितं सुखं दुःखमायुस्तस्य हिताहितम् ।
२. मानश्च, तच्च यत्रोक्तमायुर्वेदं स उच्येत ॥

Ahara (diet), Nidra (sleep or rest) and Brahmacharya (mental and physical continence) are called the three Upa Samibhas (props) of life, which in itself, results from the integration (Samyoga) of Atma (Spirit), Sattva (mind), Indriyas (Sense organs) and the Sharira (body). The whole of Ayurveda is vitally concerned with the proper functioning of each of these four severally and all the four integrated together as a whole.² Very great importance is attached to the maintenance of positive

health—mental and physical. Deterioration in health is primarily attributed to *prajnaaparadha* (faulty intellect or error of judgment), *Atmendriyarthha Samyoga* (contact of disagreeing sense objects or harmful elements with the mind and body) and *Parinama* (the time factor as modified by changes in season and other natural phenomena), which in short, comprehend everything on earth, potentially responsible for the morbidity of mind and body, are given a secondary place.

There is a chapter in *Charaka-Sambhita* dealing with *Sadvritta* (right or correct living). A selection of tenets, such as *अहिंसाप्राणवर्धनानां धेयं . . .* (non-violence is the best of all factors leading to the increased vigour of the *Prana*-vital force or life itself), can well adorn any text book on mental hygiene or Socio medical science. There are numerous instances where the reaction of mind and body on each other is graphically delineated. The emphasis on *shoucha* (cleanliness or hygienic observances) and *Acharya* (righteous conduct) laid down by *Patanjali's Yoga Sutra*, for those seeking to develop their mind and body to qualify themselves for entering into *samadhi*, is evidently due to the precepts of *Ayurveda*, the Science of life.

The *Prakriti-Vada* of the *Sankhya* system of philosophy to which *Ayurveda* owes most of its basic principles, bids fair to be recognised as the sublimest principles of science even today, in view of the modern advances in nuclear physics, since after the breaking of the atom. *Sankhya* laid down thousands of years ago that everything—mental or physical, which we can experience can be reduced to its original (causal or *prini*-genital) form, *viz.* *Prakriti* which can be called Cosmic Energy for want of more suitable expression in the English Language. *Prakriti* means, etymologically—Pro creating one. It is called the ultimate or uncaused cause of everything—intellectual or mental and physical.

The *Sat Karya-Vada* and *Parinama Vada* of *Sankhya* and a few other principles or laws of *Nyaya* and *Vaisheshika*, if studied scientifically, might contribute to further advances in mental and physical sciences. Let us hope that Indian Scientists, including the much-maligned *Vaidyas* and *Hakims*, will be given adequate impetus by the State to enable them to serve their country and humanity, in a way which might redound to the credit of their re-awakening motherland.

In the foregoing paragraphs I have made a modest attempt to show how the study of *Ayurveda* can contribute substantially to *वैश्वकर्म* (personal and social well being of man). The approach to life and its problems as elaborated in *Ayurveda* is one of those pre-eminent characteristics of oriental thought which can profit humanity, the present day confusion of ideas and ideals. To our sorrow and shame, the alien effects of slavery of past centuries is even today responsible for the

perversions of the so called intelligentsia of the country. Our vision has been so much blurred and distorted and the propaganda of the erst while rulers has gone home so deep, that even the best and tallest of Indians would never exert himself or sincerely help in the salvaging of the treasures, which lie interred and encrusted under the accreted debris of adversity and inactivity. Let us hope the wails of Orientalists, who form even today a depressed class of their own—neglected and spurned by those in authority—will at last now that the country is free, succeed in attracting the attention of some of our patriotic administrators.

I refrain from adding to the volume of this memorandum by expatiating further on concrete contributions which Ayurveda has ever made and is making now towards the physical well being of the people. There is no person in any stratum of Indian society, who has not been benefited by it and has not borne testimony to its usefulness as a healing science and art. It is undeniable that even the extant literature of Ayurveda does offer innumerable data for study and research in principles, techniques, drugs, medicinal compounds and the like, in the light of modern scientific achievements.

Observations and experimentations have been the very essence of scientific investigations since the dawn of civilisation. Basic sciences of the time offer techniques and appliances for such investigations in the domain of applied sciences. I am sure the Vaidyas and Hakims of India will be able to prove the validity of their principles and techniques (originally based on experimentations carried on in the dim past) even by the most up to date methods, used, or to be used hereafter, made available by the day to day advances in basic sciences, recognised as such. This, however will be possible if they are offered suitable and adequate opportunities to present their achievements, untrammelled by the toisting of scholars of modern medicine and other sciences at the head of their Councils, Boards, Research Institutes, Colleges and other similar institutions. Vaidyas and Hakims will, no doubt, carry on their scientific pursuits in collaboration with these scholars but the initiative must lie with them or else the history of frustrations and failure of the last twenty five years cannot but repeat itself. This demand is but fair and merits appreciation and acceptance at the hands of the powers that be.

Adequate finances for staffing and equipping the institutions of Indian medicine must be provided by the State.

The products of these institutions should receive fitting encouragement in terms of emoluments and places of honour in the administrative and social set up the country. It will be under these favourable circumstances that opportunities of service to the country—cultural or material—can be availed of successfully by any band or group of workers. This

will also serve as an impetus for the future entrants to the portals of the institutions of Indian medicine.

The present curricula of studies in different subjects prescribed at the secondary stage must be so modified that students, aspiring to join institutions of Indian medicine, may get opportunities of studying Indian culture and science as dealt with in Darshanas, Smritis and Grihyasutra, side by side with the text-books on modern basic sciences and arts. Let us hope that the educational authorities at the Centre and in the Provinces and States, who are contemplating the reorganisation of the whole teaching system of the country, will bear in mind, this vital aspect of instructional planning.

Last but not the least, there should be a separate Department of Indian Medicine at the seat of the Union Government and in the Provincial and State Governments, with a capable Vaidya or a Hakim at its head, directly responsible to the minister for Public Health. No schemes can bear any fruit, unless there is some one at the proper place, clothed with authority who is interested in and inspired by the ideals envisaged therein. That a non-Vaidya or a non-Hakim, even with the best of will and intentions, can do little justice to the cause of Indian medicine not even to himself, should be evident to every fair minded person. Let us hope that the oft repeated maxim that 'Good Government can be no substitute for self Government' which is yet ringing in our ears, applies equally well and truly in the domain of Indian medicine. Vaidyas and Hakims have now come of age; they neither need nor relish spoon-feeding.

I am sure I am voicing the sentiments of all thinking Vaidyas of the country in offering my humble tributes of appreciation and gratitude to the illustrious Chairman, Col. Sir R. N. Chopra and other distinguished members of the Committee on Indigenous Systems of Medicine, for all the pains they have taken to champion and foster the cause of Indian medicine. Let me hope that their labours will succeed in focussing the attention of the Government and the people towards the re-orientation of the two precious Sciences and the re-installation of their protagonists in the administrative and social spheres of the country.

ANNEXURE TO APPENDIX C. 8

Energy, Mind and Matter

According to the Sankhya System of Indian Philosophy, Cosmic Energy which is inherently Jada and is actuated by Purusha when it comes into contact with him, is the only reality in this universe. Energy

in its primeval state is called *Prakriti*. It means etymologically pro-creative principle (*Prakaroti its Prakriti*). It is *nitya* or eternal, beginningless and endless. It is, also, defined as uncaused cause. It is visualised as unceasing and incessant motion or activity. It is so by its inherent nature. This activity is not erratic but purposeful. The source of purpose here is attributed to spirit or Godhead. This element of purposefulness is responsible for the possibility of enunciation or determination of invariable and uniform Laws sought to be established by every seeker. The quest and determination of these laws of Nature, as they are called, is the basis of all knowledge, philosophical and scientific.

Mind and Matter are intrinsically only two phases or states of energy which are amenable to human cognition. Energy may be visualised in a state of release and arrest. When it is arrested, such mental and material phenomena come into being as are amenable to human experience and when it releases itself, mind and matter disappear and are described as merging or being reduced to cosmic energy. What does a scientist do everyday? According to the purpose he has in view, he releases energy in one way and arrests it in another. Thus Mind and Matter have an existence only in terms of energy, i.e. Mind and Matter may be said to emerge from energy and ultimately to submerge in it. Hence, everything conceivable by man is essentially energy and all investigations carried on according to this characteristic principle of Sankhya must lead to *Prama* or correct knowledge philosophical as well as material. Hence, the states of mind and matter, which are amenable to human experience and manipulation (*Abhava* and *Vyavahara*) are treated by Indian thinkers, only as passing phases of Cosmic Energy. He, therefore, takes a broader view of mental and material phenomena, however real they may appear for the time being to the material scientists and the common man of the world.

Body and Mind

The philosophy (or the basic principles) of Ayurveda is connected more intimately with the Sankhya Darshana than with any of the other reputed systems of Indian Philosophy. It should be noted here that Indian philosophy is no mere speculative knowledge or metaphysics. It is a rationalised synthesis of arts and sciences—not only spiritual or metaphysical and ethical but also mental and material (or physical). According to the Sankhya System of philosophy, Mind and Matter originate from *Ahankara* (often translated into English as the 'Ego' principle). *Ahankara* arises from *Buddhi* or the *Mahat tattva* (the principle of intellection). *Buddhi* is called *Mahan* (the Great). The

greatness of Buddhi consists in its comprehending or pervading all manifestations of the Prakṛiti (the primeval origin of the universe). Thus Mind and Matter, being comparatively gross manifestation of Prakṛiti, are both permeated by Abhankara. So, when an Ayurvedist deals with mind and matter even as two separate entities, he is ever alive to the fact that they are essentially and intrinsically only two closely connected aspects of one and the same principle.

The truth of this characteristic teaching of Sāṅkhya is amply borne out and adumbrated in Ayurveda. The interactions of mental and physical states of a living being are described in detail. Physical changes (changes in the constitution and functions of the doṣhas, dhātus and malas) brought about by such mental behaviours as truthfulness, non violence, charity, kindness, continence, acquisitiveness, grief, anger, fear, etc., are systematically delineated. Similarly mental changes brought about by dietary and physical movements (Āhara and Vihara) are also mentioned. Symptom of, and remedies for diseases like fever, diarrhoea, sometimes caused by sexual excitement (kama), anger (krodha), fear (bhaya), grief (shoka), etc., are also given. Given adequate and proper facilities, it is quite likely that molecular changes undergone by the body due to varying emotions and other mental states, may be studied and their causal relations demonstrated and established even according to the modern technique of experimentation.

Personal Hygiene and Positive Health

Ayurveda attaches considerable importance to immunity (called Roga-Kṣhamata by Charaka) in the body and consequently very great stress is laid on personal hygiene. Benefits arising from early rising, rubbing oil and massage, bath, clean habits, physical and mental exercises are extensively enumerated. Changes in dietary, physical activities, habits, mental conditions, etc., are prescribed, according to different ages of the subjects, as also according to climatic variations in different parts of the day and night and as also in different seasons.

Literature, on physico-mental exercises, such as Āsana, Prāṇayāma, Dharana, Dhyaṇa and Samādhi may be studied and adopted to modern conditions of life in the interest of the positive health of the people. Similarly rules of ethics and mental hygiene (Sud-Vertta) in which our śāstras abound, can be adopted with profit even in the present day set up of social life. Much can be contributed by Ayurveda and other allied Śāstras, e.g. Smṛitis, Grhyasūtras, etc., to Medico-Social science, importance whereof for positive health is of late is coming to be recognised and propagated. In every classical work of Ayurveda, maintenance or preservation of health and removal of ailments are invariably

mentioned as its two fold objects. Chapters on rules of Hygiene and positive health have received priority of place and importance in Charaka Samhita and Ashtanga Hridaya and students of Ayurveda are usually initiated into this subject before they are taught other branches of the science.

Experimentation

The commonest criticism often levelled against Ayurveda is that, conclusions therein are not based on experiments. A close study of the classification of physiological and pathological states and functions of the various components of the body, of well defined remedies for the maintenance of health and cure of diseases, of over a thousand drugs and of various parts of a single drug according to their therapeutic properties and of the varied techniques of preparations employed for different compounds of one or more identical drugs producing different actions should be enough to convince an unbiassed mind that these accomplishments could not possibly be the outcome of mere intuitive or speculative manœuvres of the credulous and the gullible. The laws of space, time and causality as known to Indian thinkers, have not even today undergone much of a radical change. They are even now taken for granted as axiomatic truths, as the process of demonstrating their infallibility by analytic processes has yet to be perfected. Similarly the methods of induction and deduction, the rules of agreement and difference, the methods of reducing hypothesis into infalliable conclusions through experiments, the subtle methods of detecting and avoiding fallacies and reasoning etc., are elaborately described in the Nyaya Darshana (Indian logic). Sushruta has claimed for his conclusions, in the very first chapter of his memorable book, that they are all amenable to different kinds of proof—*Pramanaih Pramanitam*—and are not in conflict with perceptual knowledge—*pratyakshavirudham*. It is common knowledge that techniques and appliances used in experimentation in applied sciences depends on the advances made in basic ones such as physics, chemistry etc etc. Similarly in Ayurveda, the methods and appliances of experimentation were based mostly on the achievements of the Sankhya and Vaisheshika schools of scientists. The laws of heat, electricity, etc., have now to be checked up and re cast in the light of advances in nuclear physics. If techniques and appliances adopted according to the scientific investigations and achievements of the last fifty years or so yield, place to newer and more useful ones, made possible by advances in nuclear physics it cannot, with any justification be asserted that, the conclusions reached some ten or twenty years back were empirical.

What needs to be done in the case of Indian medicine, is that conclusions arrived at though experiments carried out a few thousand years back, should now be checked up and re arranged according to results yielded by the newest techniques of basic sciences, acknowledged as most advanced. If conclusions as described in Ayurveda, are intrinsically true they might reveal some discrepancies in the techniques and appliances themselves or even in the theories on which the same might be based. Thus, in the interest of truth and suffering humanity, this storehouse of knowledge should be thoroughly explored with a truly scientific and unprejudiced mind. Correct and systematic pursuit of a hypothesis, ultimately proved even as fallacious and untrue, has often paid invaluable dividends. It is hoped, therefore, that principles and techniques, as enunciated in the Indian medicine, will serve at least as very valuable hypotheses for future investigation—even by the modern scientist.

Board of Editors and Research Institution Essential for Synthesis

I may be permitted to emphasise here that the appointment of a Board of Editors for preparing text books can and should be made with the least possible delay. The setting up of this Board will entail not much expenditure. This Board, to start working, will require neither extensive buildings, nor elaborate equipments. A modest beginning can be made with a library, museum and some small laboratories run by a small board of learned scholars with some assistants and other ancillary workers. The labours of this organisation are expected to yield quick and valuable results for teaching institutions. They will also serve to provide data for further advanced studies and research in the Institute of Research (recommended elsewhere in this Memorandum), which might take some time to begin working. The staff of this organisation, which will have by then, acquired an appreciable measure of efficiency, may be employed in the Institute of Research or for that matter, the organisation itself may be amalgamated with the Research Institute.

Conclusion

Let us hope that very soon after the implementation of our recommendations all suspicions and misgivings, lurking in both the camps will be finally laid to rest. The course of truth or knowledge cannot be arrested indefinitely, it can only be delayed. Let us hope the time has come now when shutters will no more be applied against the healthy glow of scientific and cultural truths—both Oriental and Occidental. Given favourable conditions, truth or knowledge has a knack of permeating the

darkest and the most obscure recesses. The domain of medicine can and should be no exception.

The ancient seekers aspired to Swantah Sukham (spiritual bliss) or Apavarga (absolute freedom from pain). The modern scientist has to cater to the material happiness of humanity (Bhogah). This radical difference in the goals set by the two kinds of seekers cannot but lead to divergence in their respective approaches to truth or knowledge, as also in the techniques and appliances employed. The former tended to *develop his mind to interpret phenomena not explicable through sense perception* and the latter is forging newer and newer aids to senses in order to enlarge the scope of sense operations. The proposed scheme of synthesis would be offering from day to day newer and more useful sense-aids to the reflective and to the sense perceptionist, it would make available a deeper and more sublime technique of developing his mental faculties.

"The late Surgeon General, Sir Pardey Lukis, sometimes Principal of the Medical College, Calcutta, and later Director General of the Indian Medical Service, said in the course of one of his public utterances, "I wish to impress upon you most strongly that you should not run away with the idea that everything that is good in the way of medicine is contained within the ringed fence of allopathy or modern medicine. The longer I remain in India the more I see of the country and the people, the more convinced I am that many of the empirical methods of treatment adopted by the Vaidis and Hakims are of the greatest value, and there is no doubt whatever that their ancestors knew ages ago many things which are now a days being brought forward as new discoveries." (Report of the Committee on Indigenous Systems of Medicine, Madras, Part I p. 8)

It is hoped that in no distant future, text books on Western medicine itself will be translated into the national language. So far, a scholar of Western medicine, being unacquainted with Sanskrit language could not make himself conversant with Ayurveda or its basic sciences, the *Darshanas*. *Similar is the case with a number of Ayurvedic Pandits* with regard to the literature of Western medicine. After the removal of the language barrier, the work of synthesis and the appreciation of one another's points of view will evidently be greatly facilitated and expedited.

Let us, in conclusion, hope that our modern scientists, who are also sons of mother India, will shed off their old complexes and join hands with scholars of Oriental sciences in re-propagating before the world, the eternal verities that Indian culture and science have in store for humanity, even today.

APPENDIX C. 9

MEMORANDUM ON THE TERMS OF REFERENCE TO THE
COMMITTEE ON INDIGENOUS SYSTEMS OF MEDICINE
BY VAIDYAPANCHANAN GANGADHAR SHASTRI GUNE,
AYURVEDASHRAM AHMEDNAGAR, CO OPTED
MEMBER OF THE COMMITTEE

At the outset I must confess my inability that I am quite unable to say anything about the Unani Tibbi, as I don't know anything of it. I will state my views only on the Ayurved. There is a vast field for Research in Ayurved with reference to :

1. Maintenance of Health,
2. Prevention, and
3. Cure of diseases.

In this respect (a) Textual Research, (b) Research through modern scientific laboratory methods, and (c) Research through clinical methods should be resorted to.

(a) *Textual Research*—Textual Research in Ayurvedic literature will certainly give a Research worker very good and definite idea about the scientific basis of Ayurved, such as Tridhatu—Tridosh theory, the Panchamahabhut theory and the Rasa, Vipak, Veerya and Prabhava theories elucidated in Ayurvedic Sanhitas. Applied aspects of Nyaya-Vaisheshik (Logic, Chemistry and Physics) of the Aryans have been incorporated, in Ayurved. Sankhya and Yoga are other basic sciences of Ayurved. These contain Psychology and Psychiatry. The Tridhatu theory is the physiology of the Ayurved. This is a peculiar theoretical conception elucidated in Ayurved. The Tridhatu theory (or the physiology) of Ayurved differs very much from modern physiology. Ayurvedic anatomy can very well be supplemented by modern anatomy. Details in modern anatomy are worthy to be and should be incorporated in the Ayurved. The Tridoshas and Malas are defined in pathology in the Ayurved. These sciences can give us a definite understanding about the living body as a whole, about the maintenance of health and the prevention and cure of diseases. For the maintenance of health स्वस्थ क्त or स्वास्थ्यानुवृत्तिकार has been written by the Ayurvedists. Therein, they have laid out rules of Diets (आहार), conduct (विहार), behaviour, and psychological aspect of a man's behaviour. All these subjects are treated in detail upon the basis त्रिधातु theory.

Prevention of disease and the maintenance of health come under स्वस्थवृत्त. They have given some rules and laid down methods for the prevention of epidemic diseases also which they name as जनपदो ध्वंसनोरोग.

All of them are based on त्रिदोष Tridosha conception and endeavour to promote natural immunity in an individual

For cures of disease, the Ayurved insists on the proper understanding of diagnosis, its developments, its conditions—acute, sub acute or chronic stages. This conception is based mainly on त्रिदोष मीमांसा (Tridosha Mimamsa) After a disease is properly and completely diagnosed by various diagnostic methods then the treatment is begun There are (1) कायचिकित्सा (Medical treatment), (2) बालचिकित्सा (Treatment of the diseases of children), (3) प्रहचिकित्सा (Treatment of the disturbances of the mind), (4) शल्य (Surgery), (5) दग्ध (Treatment of poisons and bites of poisonous animals and reptiles), (6) ऊर्ध्वांग (Treatment of Ear, Nose, Throat and Eye), (7) जराचिकित्सा (Rejuvenation and treatment to prevent old age), (8) वृष (Treatment to remove impotency) All these are based on दोषप्रत्यनीकचिकित्सा. These chikitsas (treatment of diseases) are again divided into द्रव्यभूत and अद्रव्यभूत. Medicinal plants, inorganic and animal products are used in this द्रव्यभूतचिकित्सा. From the research of minerals and other inorganic substances, they have developed the रसशास्त्र. In the रसशास्त्र many a preparation are given which can be studied in a chemical laboratory There is a vast field for Research in this रसशास्त्र. I will mention here one or two instances Mercury-cum arsenic compounds are prepared in a peculiar form, methods and ways समीरपन्नग, पञ्चभूत, महसिंदूर are some of them In all these preparations white arsenic or arsenous acid is present Their exact chemical formulæ are not known Still these things are used in various Lung diseases with confidence, success, and good effects Even though the percentage of white arsenic content in these preparations is high still no toxic effect has been noticed Why is this so? Why toxic symptoms of arsenic are not perceptible is a matter worthy of Research Suwararna Makshik Bhasma which was examined in the laboratory of Ayurvedashram Pharmacy by a Chemist of the eminence of an M Sc showed that this Bhasma contains Iron and Copper which is beneficial in the treatment of anæmias These and different other preparations and problems can be properly handled and studied with great benefit in a chemical laboratory. Similarly there are also many other valuable subjects in Ayurved, which can be properly studied with benefit through modern scientific methods

The Tridhatu theory can be proved in Biological laboratories The Tridoshas and their relation to diseases can well be verified in In door Hospitals with the help of various clinical methods This sort of

Research would give the world and the medical science many useful and valuable methods, techniques and potent drugs which would enrich the therapeutic armamentum to fight against deadly diseases, which are not as yet tackled by the modern medicine such as tuberculosis high blood pressure, diabetes and cancer

The measures to be taken to improve facilities for training in Indian Systems of Medicine

Ayurved can be improved upon and made much more useful, if proper facilities for study and research are given to its students, Teachers, Research scholars, writers and Master minds in Ayurved. There are no two opinions about the value of incorporating some of the modern sciences in the Ayurved. This sort of incorporation has also been done by the scientists in the olden days. The need for incorporation in and co ordination of many sciences in Ayurved has been accepted by Charak, Agnivesh, Drudhbala in their great Charak Samhita. Many basic sciences which were developed independently at that time have been incorporated by the great Charak. Whole of the Rasa Shashtra has been properly modified and incorporated in the Ayurved by various रससिद्धज्ञाः.

Adequate educational facilities must be provided to properly trained and selected students. Basic sciences such as Chemistry, Physics, Biology न्याय, वैशेषिकशास्त्रा and a working knowledge of Sanskrit must be made necessary for admission to an Ayurvedic College. Preference should always be given to highly qualified students for admission to such institutions. I propose Inter Science with Sanskrit for the purpose. A course of four years duration after admission to the College is necessary. One and half year for pre clinical and two and half years for clinical course is sufficient and necessary. The practical training in the subjects must be made compulsory from the very beginning of the course. Detailed syllabus and the curriculum should be prepared by experts. But one thing must be impressed upon the mind of the students that they are the students of Ayurved and that they have to study the Ayurved for service of humanity, through the prevention and cure of diseases and maintenance of public health.

Facilities for training teachers is a prime necessity. At present there are some very learned pandits who are imparting education to the students. We must be thankful to these pandits for their love of learning and maintaining the glory of Ayurveda during the centuries of adverse circumstances. They are the savants who kept the bright flame of the knowledge burning. But, with due respect to these great pandits, we must now persuade them to give up their place to modern medical

teachers and settle down to write the text books needed in the vernaculars of their provinces. We must create a new class of Ayurvedic teachers. Some of the educated graduates from amongst the Ayurvedists and some of the graduates from the modern medical Colleges should be recruited for the teaching staff. They should be given a fellowship for a year or two for higher studies in Ayurved under learned pandits. Some post graduate scholarships should also be instituted for this purpose and after the course is completed, these post graduate students should be asked to work under some eminent Ayurvedists for gaining practical experience, or a Training College for the Professors should be started by the Government, wherein, best Ayurvedists and modern medical men should be employed for imparting Education to the would be teachers or professors. These students should be asked to work under eminent men and write thesis on important subjects. Then and then only, these persons should be appointed as professors. The present condition of the professorial staff is very unsatisfactory. No wonder, then, proper types of students are seldom attracted to the study of Ayurveda.

Facilities for Research scholars and workers is also a great necessity. Pandits in Nyaya Vaisheshik and other basic sciences should be requested to work along with the Ayurvedists. Eminent chemists, physicists, botanists, physiologists, biologists, psychologists, pharmacologists, best physicans in modern medicine, clinicians, pathologists and best surgeons should co operate with eminent Ayurvedists and try to explore the so far untouched or unexplored avenues of Ayurved. Then only these people would be able to write with authority on Ayurved. Its literature will grow in abundance. The Master minds are the main pillars of Ayurvedic Research. These are very few no doubt, but they should be persuaded to come forth for the benefit of humanity, and I am sure they would come forth and give the benefit of their deep learning and their practical knowledge in various aspects of Ayurved.

It is desirable to have State control over the practice of these systems by (a) Registration of these practitioners, (b) Recognition of the educational institutions, (c) Occasional inspections of the institutions and giving sufficient monetary help by way of recurring and non-recurring grants to the institutions. All the medical practitioners practising now should get themselves registered once for all. After this is done the registration should be restricted and confined to the educated graduates of the recognised Institutions. This is the only way to improve the condition of the present medical practise of these systems.

5. The graduates of Ayurved and Unani should be utilised for medical relief schemes and health services. As regards preventive

medicine, they will have to be trained in the upto date modern methods. For this purpose short training courses should be given to the graduates after their graduation. I am of opinion that these graduates would be of great service. These workers can conduct medical relief with good success. They should be placed in charge of Dispensaries or small In door Hospitals. Health workers who should never dabble with medical treatment of patients should be posted under these medical officers. The health workers should direct their patients to the medical man in charge. They should have some knowledge of vegetable drugs which grow in and round about a village. They should be able to properly identify them and make collection of such useful drugs. They should maintain herbery shops. The medical man should prescribe these drugs properly and definately after diagnosing the cases. These herbery shops should be conducted by the Government for the benefit of the public. A comprehensive scheme can be worked out for the purpose.

Synthesis

Synthesis of all the three different systems is possible only after the full development of Ayurved and Unani. As for Ayurvedic, I am sure that the synthesis of Ayurved after its full development would be an asset to medical science. It would solve many puzzling problems and questions of the modern medicine and add to the scientific lore. Synthesis is only possible after the full development of the systems. The present condition of Ayurved is not at all fit for synthesising it with the Western system. There are so many misunderstandings, misconceptions and prejudices about Ayurved in the minds of present day medical men, scientists and workers in the field. After thoroughly exploring all the avenues of Ayurved, I am sure it would throw more light. Synthesis will become possible not till then.

APPENDIX C 10

A NOTE ON THE DEVELOPMENT OF INDIAN MEDICINE
 BY DR B B YODH MB (BOM) MRCP (LOND)
 DTMH (ENG) CHAIRMAN INDIGENOUS SYSTEMS
 OF MEDICINE ENQUIRY COMMITTEE OF THE
 GOVERNMENT OF BOMBAY

I Research

Research in the indigenous systems of medicine consists in (1) getting our ideas clarified as to the meaning of the original texts. This will require scholars with high grade knowledge of Sanskrit and English

and the mother tongue. These must be picked up by offering attractive scholarships to brilliant boys.

(2) Clinical study based on the Tridhatu and Tridosha theories, verification of signs and symptoms according to these and comparison with the modern concept of disease. These should form a part of thesis for higher qualification in either system.

(3) The Indian Research Fund Association should sponsor this work by establishing an expert Committee of recognised Ayurvedic and Unani scholars with those of modern medical systems. They should work out schemes of research, lay down the methods which may be followed and invite applications for research on those lines from qualified practitioners or post graduate students from either institutions. This work may also form the basis for higher qualifications.

II Rural Practice

The problem of providing medical aid in rural areas is difficult to tackle. If we wait for providing them with qualified medical practitioners, however rapid and increased our turnover may be, it will take a great many years to do so. It is, therefore, suggested that with qualified medical men who may be appointed or working over a group of 5 or 10 villages, some trained assistants working under their direction should be provided in the first instance. These trained assistants should be recruited from amongst the intelligent boys and girls of corresponding rural areas by a preliminary selection by either Village Panchayats or Local Boards. They should be able to read and write and be sufficiently intelligent to grasp simple facts. These people could be trained in small district towns, where a syllabus lasting for about a year can be provided for them in the mother tongue. If, after the end of the year, a good many are found to be satisfactory, they should be sent back to their villages for working as Government servants under qualified medical practitioners. They should be provided with permanent posts, graded and pensionable. They, however, should not be allowed to do any private practice, even after retirement from service.

Another way in which practitioners may be obtained for rural areas is to pick out students who may be poor and who, for want of funds, cannot undertake medical studies, although they are qualified to do so by their academic career. These students should be given scholarships for the medical course, provided they agree to serve five years after qualifying in rural areas, if asked to do so. A third method is to go to an earlier stage still and pick up students from schools, situated in rural areas who may be bright and willing to undertake collegiate and medical studies subsequent to their passing out from those schools.

These are the people likely to return to their villages after their qualification

III Text Books

The question bristles with difficulties but must be tackled forthwith, even at the risk of losing some money on it. All persons who made efforts on this line should be asked to submit their books or manuscripts for publication, if approved by an expert body specially appointed for the purpose and working in one or two of recognized institutions in each province. Two or three men will be available in each place for this work. The object will be to secure texts in simple terms, preferably in the mother tongue of the region or in Hindi or in simple Sanskrit or even in simple English. The Sanskrit text should be appended at the bottom on each page or the essential shlokas in an appendix with each book.

After this preliminary survey which may take one year or thereabouts, proposals for preparing new text books could be taken in hand. What others have done so far will have been easily valued and more workers may be available by then, as it will be known all over that suitable texts are being prepared. These should be in the mother tongue of the region or Hindi or simple Sanskrit or even simple English.

The Committee should be a small one and should work in a central place like Delhi and an attempt should be made to achieve uniformity in ideas all over the Dominion of India in this matter.

IV Standards of Schools

The following should be uniform standards to be expected from these institutions all over India

- 1 Standard of admission—First year Science, or its equivalent
- 2 Knowledge of Sanskrit
- 3 Instruction in the mother tongue of the region
- 4 Uniform texts in the mother tongue or Hindi
- 5 Museums—Dissection Halls
- 6 Laboratories
- 7 General outlay of the College
- 8 Requirements for teachers
- 9 Number of hospital beds
- 10 General outlay of Hospital and Laboratories
- 11 Duration of the course
- 12 Inter provincial recognition

V. Pharmacies

Enormous vested interests are springing up all over India. Few standards are maintained in selection of basic drugs, preparations and handling of these in the manufacture of preparations. Standardisation of each basic and of each completed preparation should be enforced. As the number is very large, it will be impossible to tackle them all. It is likely that by common consent, about 150 preparations may be capable of standardization. This should be first attempted and a small agreed Pharmacopœia with standards laid down should be prepared. This can be undertaken by an expert body in which, for the Ayurvedic side, a Vaidya, a Pharmacologist, a Clinician of modern medical science and a representative of Pharmaceutical concerns may be included for each province. After they have prepared their data *etc.*, in about one year, a small All India body from amongst these may be set up which will prepare the final Pharmacopœia. All these Pharmacies must then use these formulæ and these standards and no others.

APPENDIX C-11.

SOME SUGGESTIONS FOR THE ADVANCEMENT OF AYURVEDA

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For the last fifty years, various attempts have been made to improve the Ayurvedic system of medicine and its teaching. Some of the provincial Governments have already come to realise the usefulness of the system and have established Boards for its development. Other Provincial Governments are also thinking along these lines. Though the same Ayurvedic system is in vogue in the different provinces with local modifications, yet, up till now, there has not been any Central Ayurvedic Board constituted on the lines of the Indian Medical Council to co-ordinate the efforts of the different provincial Governments for improving the system and its teaching. Recently, a Committee has been set up by Central Government to devise ways and means for improving the Indigenous systems of medicine. We would like to submit the following for their consideration in respect of steps to be taken for the improvement of the Ayurvedic system of medicine and its teaching.

- (1) To establish a Central Ayurvedic Council as well as Provincial Councils by legislation.
- (2) To regulate the teaching of the Ayurvedic system of medicine and to establish Ayurvedic teaching Institutions.
- (3) To open Ayurvedic Hospitals and charitable dispensaries.
- (4) To establish Research Laboratories for improving the system to suit modern requirements.
- (5) To make arrangements for the compilation of suitable books for the teaching of the system on modern lines.
- (6) To standardise and control the sale and preparation of Ayurvedic drugs.
- (7) To define the status as well as rights and privileges of Ayurvedic practitioners.

We beg to elaborate the above points as follows :—

Establishment of a Central Ayurvedic Council as well as Provincial Council by legislation

We have already mentioned the need for establishing a Central Ayurvedic Council. This Council shall supervise the teaching of the Ayurvedic system in the country and shall give necessary guidance and direction to the Provincial Councils in the matter. For this, it will be necessary to enact Legislation in the Central Assembly giving statutory recognition to the Ayurvedic system and constituting a Central Ayurvedic Council for controlling the teaching and practice of Ayurvedic system of medicine throughout the country. The next step will be to set up, in co ordination with this Central Council, different Provincial Councils by legislation in the Provincial Assemblies for controlling the teaching and practice of the system within their respective areas. The Provincial Acts will also define the status and the rights and privileges of Ayurvedic practitioners.

In this connexion, we would also like to point out the necessity of having a separate Department for the Ayurvedic system under the Central and Provincial Governments in their Medical Department. At present, all important matters relating to the Ayurvedic system are considered by the Provincial Ministers through the help of Surgeon General's Department, which has its interests only for the Western system of medicine. As a result, no justice is done to the Ayurvedic system, a specific example of which is given below.

In 1942 at the time of famine in Bengal a large number of people began to die for want of proper treatment due to the non availability of allopathic medicines due to the war. The Ayurvedic Council approached the Government of Bengal to open relief centres on Ayurvedic lines for the distressed people. But, on the advice of the Indian Medical Council and the Surgeon General, the Government turned down the proposal of the Council and indirectly allowed many people to die without any treatment. From this, it would be obvious that in matters relating to Ayurved, the Government, instead of relying on the advice of the Surgeon General or the Indian Medical Council should rely on the guidance of those who are interested in the Ayurvedic system of medicine.

To regulate the teaching of the Ayurvedic system of Medicine and to establish Ayurvedic teaching Institutions

There is difference of opinion as to how the Ayurvedic system should be improved in order to serve the needs of

the present times. In this matter, there are mainly two schools of opinion, one of which holds that, the system should be taught only on its own line and nothing of the present medical advances should be incorporated therein because that may destroy the special features and characteristics of the system. Moreover, the system is the creation of the Rishis i.e., seers, and as such, no one has the right to change or improve on it. The other school holds that the great improvement which had been effected in the Ayurvedic system in the past have been mostly lost and forgotten due to the foreign rule. The Ayurvedic books which we now find are only incomplete collection from older books which are no longer in existence. Moreover, we are living in an age in which the influence of modern science has permeated our life through and through. We find that we understand old conceptions better when they are expressed in terms of modern scientific language. Further, it is not possible to build a complete system of medicine in tune with modern life which does not take into consideration and incorporate the results of years of scientific researches in the field of medicine. We are in entire agreement with the second school of thought. We are also of opinion that in order to save the country properly, one must have sound knowledge of the Ayurvedic system of medicine as well as of all modern advances of Western medical system. A village doctor professing the Western system of medicine prescribes medicines to his patients for the supply of which, they have not only to depend on outside but also have to procure them at expenses often beyond their means. On the other hand, an Ayurvedic practitioner in the city, if he were to follow the directions laid down in the old treatises, would place his patients in an embarrassing position and they would find it difficult, if not impossible, to follow him. This is one of the reasons why many would otherwise, have resorted to the Ayurvedic system of medicine, take recourse to Allopathic system. Yet, it is possible to revise the old system and use it to suit the needs of modern times. Such improvements cannot be effected without the sympathy, support and authority of Government. It will also be necessary to establish in each province a model Ayurvedic College directly under the management of the State. Such a College should provide accommodation for at least 500 students. The Institution should have attached to it, (i) a well-equipped Hospital (ii) one Herbarium and botanical garden (iii) one Pharmacy department, and (iv) a Museum. It is desirable that the Institution should be residential.

Establishment of Ayurvedic Hospitals and Ayurvedic Charitable Dispensaries.

It will not be possible to effect the improvement of the Ayurvedic system by only opening Ayurvedic teaching Institutions. It will also be essential to establish Ayurvedic system except that in two or three provinces a few thousands are allotted for this purpose. Yet, more than 70% of the people in this country get their medical relief according to the Ayurvedic system of medicine, which is at present, in the hands of a class of people many of whom are not properly qualified. Government should, therefore, immediately take steps to open Ayurvedic Hospitals and charitable dispensaries to be run by duly qualified Ayurvedic practitioners who should be also appointed as Health Officers in their respective areas. We are of opinion that such a step will not only absorb the existing Ayurvedic practitioners in Health services in rural areas but also the Ayurvedic system will be made an essential part of comprehensive scheme of medical relief,—curative and preventive.

Establishment of Ayurvedic Research Laboratories

We have already stated that to make the Ayurvedic system more effective and easily acceptable to the large majority of the people, it should be reformed and brought up to date. Secondly, it is necessary to standardize the Ayurvedic drugs. It will also be necessary to interpret the Ayurvedic theories and principles in terms of modern science. We must also publish new books based on the old treatises but supplemented with modern advances wherever necessary. To do all these, there must be Research Institutions in the country, the establishment of which, should be immediately taken into hand by the Central as well as the Provincial Governments.

Ayurvedic publications.

Most of the Ayurvedic books now available are only incomplete collections of the older ones. In the same book we find *Materia Medica*, *Medicine*, *Midwifery*, *Surgery* etc., all jumbled together. There should be separate books on each of the subjects and they should be compiled from different books supplemented with modern advances wherever necessary. Such books should be the standard text-books to be used all over India. Besides there should be separate standard books on modern advances, which must be written in comparison with Ayurved. In the absence of such standard books, it will not be possible to maintain an uniform standard of teaching all over the country. We

therefore suggest that an expert Committee should be set up by Government which will devise ways and means for the compilation of suitable text-books by specialists on the line mentioned above

To standardize and control the preparation of Ayurvedic drugs

The Ayurvedic medicines are generally prepared by the Ayurvedic practitioners who, as a rule, prescribe them only to their patients. But, in the course of the last few years a number of pharmaceutical works have grown over the country for manufacture and sale of Ayurvedic medicines. Besides, there are many practitioners who also prepare and sell medicines both to their patients as well as to the public. All such concerns are flourishing because there is popular regard for Ayurvedic medicines. But, there is a general complaint that it is very difficult to obtain pure Ayurvedic medicines in the market. It is because there is no machinery to check the manufacture and sale of the spurious medicines. The Council is of opinion that unless a suitable machinery is set up by Government for testing Ayurvedic medicines and to properly control their preparation and sale, there is every likelihood that the people will be cheated and there will be no popularisation of the system.

To define the status as well as rights and privileges of Ayurvedic practitioners.

If Government recognises the Ayurvedic system which they propose to do, adequate rights and privileges must be granted to the Ayurvedic practitioners according to their training and qualification. At present, even the registered Ayurvedic practitioners have got practically no status higher in the eyes of the Central or Provincial Governments. This is specially true about the Government of Bengal. Here, inspite of there being an Ayurvedic Council and State Faculty working under the direction of the Provincial Government, the Ayurvedic practitioners registered under the Faculty do not enjoy any rights and privileges from Government. As a result, there is hardly any difference between registered and unregistered practitioners. This has threatened the very existence of the Council and the Faculty. The Council is of opinion that no scheme for improvement will be effective until and unless this point has been satisfactorily settled. In this connexion, the Council would like to mention an unfair order of the Bengal Council of Medical Registration. Kaviraj Provash Chandra Sen, M B, who was connected with an Ayurvedic Institu-

tion was charged for infamous conduct by the Bengal Council of Medical Registration for teaching a subject approved by the State Faculty of Ayurvedic Medicine and subsequently his name was removed from the register maintained by the Bengal Council of Medical Registration. Fortunately, this order was later cancelled by the Provincial Government. This only indicates the attitude of a large section of the medical profession towards the Ayurvedic system. Unless and until steps are taken to remedy this state of affairs it will not be possible to effect any improvement whatever.

APPENDIX C-12

BURMESE INDIGENOUS MEDICINE BY DR MAUNG SEIN

Civilization and the arts of healing, usually go hand in hand and even in primitive society, Man had a collection of herbs with which he used to assist Nature in the cure of diseases which attacked him. With the existence of Burmese civilization and culture for the last 2000 years a definite rational system of Medicine with a rich store of knowledge behind it was evolved taking its form from clinical experimentation and observation (also the basis of most modern Sciences be it in one form or the other). Thus although, the capital of various kingdoms changed from Thareikhattya to Pagan then to Tungoo then to Ava Pegu etc, the knowledge handed down through the various schools maintained a definite continuity and in spite of turmoils political changes and upheavals it flourished and grew in the calm serene atmosphere of the Monasteries each succeeding generation adding its share till it reached its present status, the knowledge being spread out in some hundred *Being daw Kyans* (literal translation pharmacopoeias) besides the knowledge which was the exclusive privilege of those who discovered it and kept it a closed secret which was handed down from father to son.

A brief survey of the conditions in which the art of healing grew should be illuminating. Burmese Medicine has its origin in the Animism and the spirit worship—the *Nat* worship which existed in Burma before the advent of Buddhism. Diseases were believed to be caused by the wrath of *Nats* or Spirits who must be appeased. Therefore certain special *Godhas* (Slokas) or sacred utterances came into existence which if repeated in the vicinity of the sick person would help him to recover or the sacred writings were to be applied in the form of ashes when instantaneous relief could be obtained. It was the period when

Animism and Aritis flourished in Burma. Plants and Herbs came to be gradually used, but valued more for their magical rather than their pharmacological properties. By about 200 B C, with the coming of Indian settlers with the fugitive King ABHIRAZA, Ayurvedic medicine was brought into Burma. The concepts of four elements, phlegm producing substances, Heat and Cold was introduced. The Pharmacopoeia, which though it contained new drugs and new processes brought by the outsiders, however retained its local character. With the rise of PAGAN about 98 A D, Alchemy flourished and a thorough investigation and study of plants, minerals, metals and animal products was made in an effort to find the philosopher's stone and to evolve a process to change baser metals into Gold. This immensely helped to enrich the knowledge of drugs. Burmese Medicine was by then empirical medicine and it had entrenched itself firmly in the fabric of society. It still retained a halo of sanctity and mystery and was largely practised by monks, although there was an increasing tendency for laymen to enter the profession of healing. Ayurvedic Medicine exerted tremendous influence on Burmese School of thought. Zi-waka (a physician of Buddhist times) occupies the same position in our Indigenous Medicine that HIPPOCRATES does in relation to Modern Medicine. Court Physicians (Tha ma Dawa) practised medicine and occupied fairly prominent positions in Society, and were given a large number of privileges. They had a hand in trying out new remedies and a large number of prescriptions compounded by them are still used today in the country. HIMAWBI SAYA THEIN was the last of the line of this category and his books give a fairly accurate idea of the important place of Burmese Medicine in the Society of that period. The development of Surgery was a much slower process. The various territorial expeditions of BAYINNAUNG, TABINSHWETI (Circa 1500) and later of ALAUNG PAYA (1752) gave a distinct and marked stimulus to it. Sterilization of war wounds by heat cauterization was an outstanding feature. The Surgeons invariably accompanied the invading armies and it is recorded how much faith ALAUNG PAYA had in his surgeons when one of his Generals was hit by musket fire at the siege of PEGU. Burmese Medicine reached its full stature at this time, with the experience accumulated in the past nine centuries. The existence of royal patronage enabled the general masses to utilize it to its fullest extent.

• The decline of Burmese Empire and the beginning of British conquest starting in the reign of BODAWPAYA towards

the beginning of the 19th century had its repercussions on general Burmese Medicine and the art went back again, as in its remote beginnings, to the hands of Monks in the secluded Monasteries. The lamp of learning and investigation flickered and dimmed, but has never been extinguished. It is rather sad that Burmese Medicine which could, and would have played a lion's share in improving the health conditions of Burma was never actively or indirectly encouraged, or its resources mobilized. A fact which becomes more glaring, when one keeps in mind that this region is one of the unhealthy regions of the world. There is ample historical evidence to prove the effect of *India's Schools of Medicine on Burmese Medicine*. They contributed chiefly and largely in theory their various aspects and their etiological factors. In exchange Burma contributed in enriching India's pharmacopoeial treasure in contributing new plants and drugs. There was a very large amount of trade in drugs between Burma and India since prehistoric times. A thorough and honest evaluation of Burmese Medicine in the light of Modern Scientific knowledge would help to establish its true position. The investigation must be done in a spirit of broad mindedness and true scientific enquiry, forming one's opinions on solid facts and not on preconceived prejudices or misconceptions.

Burmese Indigenous Medicine, as it exists today is essentially an empiric art whose usefulness rests entirely on its store of pharmacopoeial preparations and drugs found beneficial by trial and error and clinical experience. Its theoretical concepts are derived from Ayurvedic Medicine, the elements being roughly divided into, 'hot' and 'cold' properties. There is no doubt that its ideas on causation of disease, and the morbid process are very archaic and have lagged behind viewed in the light of modern scientific medicine. But they occupy and make up only a very small portion of the general bulk of the knowledge. Most of the space in the Burmese text books of medicine devoted in studying in detail, the various diseases and the drugs and their properties. All drugs are used by weights. The units of weight being by —

- | | | |
|-------|-------|------------------------------|
| (i) | KYAT | weight of 1 Rupee or a Tical |
| (ii) | NGAMU | , 8 annas piece |
| (iii) | PE | 1 anna |

The pharmacopoeial process used were pulverisation distillation sublimation, precipitation and levigation and oxidation

and making of solutions and thick syrups Most of the heavy metals were administered in oxide form They are heated in ovens for days at a stretch and the ashes collected For example, Iron in the form of Iron Rust is mixed with Sweet Toddy and is used when swellings occur in different parts of the body (Oedema due to severe anaemia) A short description is — "Iron Rust whole Iron Powder - 5 ticals worth is allowed to dissolve in lime juice (citric acid) for 3 days Filter it and next wash it with urine of goats and to every one bottle of Sweet Toddy put five ticals worth of powder and drink the swellings would disappear Mercury (vernacular Pada) is fairly commonly used Besides being used in medicines, for internal use, mixed with honey it is used for eye drops and for wounds caused by spears, knives and other traumatic injuries Instructions to treat chronic eruptions, wounds, weeping ulcers and wounds freely flowing with pus with Mercury preparations are found in books and these remedies are quite common and efficacious A detailed description of one of the pharmaceutical processes used in the preparation of Mercury compounded from black mercury are (presumably Mercury Sulphide) would be interesting 'The first step consists on pouring betel leaf juice over it as long as it takes 15 fires to burn (measure of time One Fire equals 15 minutes), its colour will then be ashen grey The second step consists in pouring lime water for 17 fires till its colour turns to that of meteoric iron Next pour Cutch Balsam over it for 7 fires, till its colour assumes golden yellow, then for 21 fires pour Sugar Cane Juice over it till its colour is that of Pearls After mixing with Ghee, Pig's lard and milk in 3 equal proportions, cook it for 25 fires till its colour is that of the Pole Star This mixed with Ghee, Oil or Honey one tical in weight is taken daily for 54 days, the person shall live up to 150 years If 2 ticals daily is taken, not only will he live up to 150 years, but he will be immune to the wounds caused by spears, daggers and gunshots When 3 ticals of this is taken daily for 54 days, the hair will not turn grey, hearing will not be impaired, absence of eyeaches and improvement of complexion would result "

Among the methods of administration of drugs, a fairly common practice is to suspend them in heavy oils as Sesamum Oil and rub them into the skin In one of the books after giving the exact quantities of various ingredients to be used in its preparation with oil various diseases as muscle sprains joint sprains, hemiplegias in which they may be used would benefit are described

Attention must be focussed on the unique modes of administration very commonly employed in the country. One of them is the use by 'Licking salts,' the drugs, especially the roots of trees as *Strychnos*, *Nux Vomica* and salts, as Potassium Chloride, Potassium Sulphide, are ground into powder and meant to be licked slowly and allowed to dissolve in the mouth. A large number of them have a very pleasant taste, and most children take delight in taking them. There are about 200 varieties of them and used for dyspepsia, flatulences, and diarrhoeas. They are very popular with the general populace and comprise a very effective remedy.

The Burmese Physicians, as do followers of Modern Scientific Medicine, attach great clinical importance to the state of the tongue—whether it is furred or clean, the colour, shape of the tongue etc. They also realized the increased vascular bed provided by its relatively large surface and so had small pellets of drugs which are treated as "tongue rubbers." They are supposed to be kept in the mouth and allowed to dissolve slowly on the tongue and not meant to be swallowed. They act in two ways, (1) they clean the tongue by removing the fur and, (2) quick absorption of drugs through the large mucosal surface, offered by the tongue and the Buccal Mucosa being similar in modern medicine to the Hormonal 'Linguists.' These have been in existence for the past 300 years. These are used mainly in digestive complaints, contain a fair amount of astringents and are quite efficacious. Salads were also used made up of flowers e.g., *Lotus Flower salad was being used in the treatment of Haemoptysis.* The clinicians of Burmese Medicine were acquainted with most of the pharmacopoeial laws. They were well aware that the mode of action of a drug varied with the route and the state in which it was administered. The same active principle given with different vehicles may act differently, for example to quote from "Being daw Kyan", "In cases of gastritis and digestive disorders, grind the drug and administer with *Hot* water—relief would be obtained. In heaviness of the head and headaches if the powders mixed with oil and rubbed on the forehead the pain will disappear. It can also be cured if taken orally with water. It may similarly be used for chest complaints. In cases of conjunctivitis, instil in the eyes, and for corneal opacity mix it with milk and instil. For Menorrhogias and Amenorrhoeas in women give the drug in honey etc."

Let us evaluate in the light of modern scientific discoveries some of the drugs that are used by local Burmese practitioners.

The use of dried Amla Zeepyuthi (a very rich source of Vitamin C) is met with again in correcting digestion and disorders of nutrition

Chaulmoogra oil and Mineral Oils found around YENAN GYAUNG have been known since time immemorial by the Monks and used for the treatment of leprosy. *Holerna Anti Dysenterica* grows fairly commonly in the country and has been used in Dysenteries and Diarrhoeas. The urine of pregnant women was used in the treatment of female complaints, which is very similar to the use of Hormones. Let us take a prescription used to stop vomiting—it runs as follows —

„	Alum	5	Ticals	} Crush and grind them with limejuice	
	Mercury	5	,		
	Aluminium	}	5		
	Silicate				

Scrape the powder sticking to the upper part of the pestle and mortar and administer to a person who is vomiting. Next give cocoanut milk for 3 days and milk for 3 days "

Cocoanut milk was also used for the treatment of cholera. A measure in which definite scientific rationale can be claimed is that, if cramps occur in diarrhoea give five limes with plenty of salt (to replenish obviously the salt content of the body)

The therapeutic use of liver though fairly recent in Modern Scientific Medicine, has been used for a long time in our Indigenous Medicine fairly frequently. Detailed instructions on its proportion in powdered form are given, and is believed to build up general resistance.

Contrary to expectations and the general conceptions prevalent among the exponents of Western School of Science, one is struck with the complete absence of any form of dogmatism in theory or practice of Burmese Indigenous Medicine. No single drug is regarded an absolute panacea for all the ills. They only say that a certain number of cases were cured or those who found relief thus preserving their scientific character and having no traces of quackery or charlatanism of which the Indigenous Medicine have usually been accused. Burmese Indigenous Medicine is built on the basic fundamentals of clinical observations and experimentation, the same method upon which Modern Scientific Western Medicine is built. With the lapse of royal patronage and the general breakdown of organization in the country, and due to lack of encouragement on the part of the

British, Burmese Medicine was on the decline. No honest attempts were made to size its value. In fact, no investigation was ever taken, or the subject ever interested the then prevailing Government. Anything which could not be understood or unfamiliar must be valueless. This was the guiding principle. Burmese Medicine entered its dark period.

Today Burmese Indigenous Medicine although deeply entrenched with a practitioner in practically every village, is not organized. It is very popular with the general population and they have deep faith in it. One has not got to go far to explain its popularity—it is cheap, its drugs give them relief from their complaints. Unfortunately these Practitioners have no professional or official standing, their certificates are not accepted and no legal importance is attached to their evidence. In fact, no system of registration exists for them, although, registration of Practitioners of Western Medicine is done by the Burma Medical Council and general professional discipline is under its control. It consists of a body made up of Inspector General of Hospitals, and senior members of the staff of the Rangoon General Hospital and Professors of the Rangoon Medical College.

The knowledge of Indigenous Medicine is imparted mostly privately by the older Practitioners. There are two schools in existence in Rangoon and one in Mandalay, but their equipment is meagre and because of lack of State support their buildings and teaching staff are of a skeleton nature. They run Out patients Department and distribute free drugs, but have no hospitals attached to them. No degrees or diplomas are awarded by them. The Government of Burma does not maintain or support any of these Dispensaries or Schools. They are all run by private effort. The daily attendance at these clinics is about 100 per day. Surgery is practiced by them, mostly of the nature of opening up boils or abscesses—it is done under septic conditions. In short Burmese Indigenous Medicine though it enjoys the confidence of the people and has a large utility value has not received the State and official support, which it deserves on scientific grounds.

It is believed that once the country becomes tranquil, the Government of Burma have plans to establish and control these systems and to find out ways and means of utilizing them to the best advantage of the country. There is no doubt that if approached in a proper spirit, indigenous medicine would contribute a host of useful drugs and in return accept the advances of modern pathology and bacteriology. This should be incorporated

in its main body, thus revitalized and rejuvenated it would be of enormous value to Burma. After all, as DESCARTES said, Medicine exists for its service to humanity. It is practised not for its own sake or because it is interesting but for its value to Man.

I would like to point out that the present investigation is more of an introductory nature and I hope it will stimulate some of the readers to make detailed investigations to restore Burmese Indigenous Medicine to its proper stature.

APPENDIX C-13

"SUGGESTIONS FOR DEVELOPING THE AYURVEDIC SYSTEM,"

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1. How Ayurveda should be developed.

If Ayurveda is to survive, it is of utmost importance that its development should take place in a natural way. No body would deny that, due to a number of uncontrollable causes, the science and art of Ayurveda have gradually declined. Every Ayurvedist knows fully well that what passes for Ayurveda today, is only an apology for what it was during its hey day in the prechristian era. But, it can be said without any contradiction, that notwithstanding the greatest loss in the field of Ayurvedic literature, its soul is still shining in all effulgence. The soul of Ayurveda is constituted of its eternal principles—the brilliant generalisations of India's ancient seers—and on the solid basis of these principles, it is even now possible and practicable to build up a gigantic structure of medicine, surpassing all the known systems of modern medicine not only in practical utility but also in the simplicity and universality of its theories and principles. To substitute the modern scientific method in place of the old Ayurvedic method for the future study and research of Ayurveda would be nothing short of cutting its tap-root and making its gradual disappearance certain from the land of its birth. Its scientific study would surely enrich modern medicine and make the latter more serviceable to the suffering humanity. But, it cannot be adopted for restoring Ayurveda to its pristine glory. If it is the intention of the powers that be, that modern Western medicine alone should exist, then it is perfectly reasonable to investigate Ayurveda from the scientific stand-point and incorporate into the former whatever is found to be scientifically valid. If on the other hand, the desire is to

encourage and uplift Indian medicine also, then the Government must rid itself of the glamour for the scientific method, at least in so far as Ayurveda is concerned. It must first recognise that Ayurveda is an independent system of medicine and that its theories and principles are as much valid from its own standpoint, as are those of the Western medicine from the scientific view point. To declare it as irrational on the basis of the criticisms levelled against it by those that have tried to understand it scientifically would be as much ridiculous as to assert the worthlessness of scientific medicine by investigating it from the stand point of Ayurveda. The rationality and the soundness of a system can be ascertained only by making an impartial and deep examination of it in the light of its own fundamental notions. The principles of Pancha Mahabhuta, rasa, virya, vipaka and prabhava, tri dosha, triguna etc., are the fundamentals of Ayurveda and a correct knowledge thereof is a *sine qua non* for judging the worth of the system. Moreover, a thorough and clear grasp of the six ancient Indian Darsanas is necessary if the principles themselves have to be understood in all their technical details. If any one tries to pass judgment on the irrationality of Indian medicine without first equipping himself with these necessary qualifications and then making an unbiased and critical enquiry, it should be simply dismissed as invalid. However much a scientist's equipment might be thorough in respect of the modern physical, biological and medical sciences, he would surely miss grasping the heart of Ayurveda unless he also equips himself with the needed knowledge of the Indian Darsanas and conducts his researches keeping always in mind the view point of the Ayurvedists. I would, therefore, suggest that the Indian medicine should be allowed to grow as an independent system. This does not mean that the pure Ayurvedists should shut their eyes completely to all the inventions of the European medicine. When once it is recognised that Ayurveda considers that there is no substance in this world which cannot be utilised medically, then the utter unreasonableness of making a distinction between Ayurvedic and un Ayurvedic drugs and chemicals would be brought out clearly. The distinction of an indigenous medical practitioner does not consist in the administration of a drug whose properties are dealt with in one of the Ayurvedic classics but it lies more in its use according to the Ayurvedic pharmacological and physiological principles. Thus it would be in the interest of progress of Ayurveda if all the reputed remedies of modern medicine are

studied in the light of the Ayurvedic pharmacological practice and their properties explained in the Ayurvedic terminology. Should a pure Ayurvedist administer to his patients a medicine like Potassium Bromide, for instance, on the basis of a mere knowledge of Western Materia Medica, it could be dubbed as quackery of the worst type, but if he does it after acquainting himself with its properties in the light of the principles of his own Sastra, it deserves to be called rational practice. This is the way that Ayurveda should develop. To sum up, the future study and investigation of Ayurveda, with a view to developing it and restoring it to its original glory, should be carried on in conformity with its unalterable and eternal principles.

2 The need for the Study of the Western and Surgery Anatomy.

That all diseases are not amenable to mere medication was a point well recognised by the ancient Indian medical men. As a matter of fact, one of the three Ayurvedic classics predominantly deals with surgery. But it cannot be gainsaid that the information now obtained through it is so inadequate that not even minor surgical operations can be successfully conducted on the basis of the knowledge gained from it. Moreover, the anatomical portions of the extant Ayurvedic texts are meagre, distorted and utterly insufficient for surgeons. These defects must be remedied if Ayurvedic Surgery is to be revived. In this connection it is suggested by many, that the Western anatomy must be substituted *in toto* for the Ayurvedic anatomy in the curriculum of Ayurvedic students intent on learning Surgery. This is, *prima facie*, a worthy suggestion, no doubt. But it does not take into consideration the glaring peculiarities of the Ayurvedic anatomy. Even in the little anatomical information that could be gathered in the extant texts, we cannot miss noticing certain differences between the ancient and the modern anatomies. To treat these differences as of no account at all and to argue that whatever is not accepted by the modern anatomist can be simply treated as a mere theoretical speculation not grounded on experience, is only to betray partiality to a particular science. In my opinion, while the study of western anatomy is absolutely necessary for the future Ayurvedic surgeons, it is of utmost importance that it should be done with a view to making good the loss sustained in Ayurvedic anatomy and that, in this attempt, the distinctive characters and certain fundamental differences in the enumeration, description etc., of nerves, lymphatics, blood-vessels etc., ought to be carefully

noticed and a serious attempt made to establish their validity by means of direct observation, inference and valid testimony. In respect of surgery, it would be foolish to say that the Ayurvedists could become efficient surgeons without learning western surgery first at the feet of modern surgical experts. After first learning western surgery, some of the Ayurvedists must gain proficiency in the art and thereafter, should devote themselves for reviving and developing Ayurvedic surgery in accordance with its basic principles. It is, however, superfluous to add that such of the pre operative and post operative measures as are adopted by the western surgeons might with equal advantage be adopted by the Ayurvedic surgeons also, wherever necessary. In surgical practice, it is important that Ayurvedic surgeons should bear certain points always in mind. They must first make a distinction between surgical and non surgical cases in the light of their own Sastra. What is treated as a surgical case by western surgeons need not be necessarily accepted by the Ayurvedists also as surgical. It is the pride of the Rasa Vaidyas that, they can cure many of the admittedly surgical cases by the administration of their *rasa aushadhas*. The ancient works on rasa are replete with hundreds of potential remedies and if the future Ayurvedic pharmaceutical concerns take to the manufacture of at least some among them, it is quite probable that they might act with wonderful efficacy even in cases that fall under the province of the surgeon. The judgment on the utility or otherwise of the *rasa aushadhis* should be reserved until they are tried clinically in a number of cases in the Ayurvedic way and the results recorded and published.

3 Preventive Medicine

It is said that the ancient Indian medical men knew nothing of the preventive medicine. But, this is not borne out by facts. It can rather be said that the Ayurvedists have had no opportunities to show the efficacy of their methods and remedies in this field. There is, nevertheless, some difference in the approach made by the two school of medicine towards the prevention of disease. The Ayurvedists attach greater importance to the constitution of the individual than to his environment. If the Doshic equilibrium is maintained in the body, they say, it will successfully prevent the occurrence of all organic diseases. With this end in view, they enjoin certain rules to be followed in respect of diet and conduct. These are of such a nature as could be easily put into practice. But,

experience has shown that it is practically difficult to expect men to be always guided by the rules of health. Transgression of the laws of health is common among the generality of mankind. Keeping this in mind, the Ayurvedists have also found out certain remedies by means of which it would be possible to develop resistance to disease. An opportunity should be provided to put these methods and medicines to test if the real value of Ayurvedic preventive medicine is to be properly ascertained.

4. Qualifications needed for the Ayurvedic Student and equipment necessary for the Ayurvedic Hospitals etc.

In as much as all the classics of Ayurveda are written in Sanskrit, it is essential that the Ayurvedic student should be well versed in it. Moreover, just as a working knowledge of the Western physical and biological sciences are deemed necessary for the student of Western medicine, so also a good knowledge of the ancient Indian physical sciences or the Darsanas must be considered as an essential equipment for the Ayurvedic student. Without this preliminary knowledge, the student would not be able to understand the fundamentals of the system and consequently, his theoretical knowledge would be superficial and utterly inadequate for efficient and rational Ayurvedic practice. Insistence on a knowledge of Western physical and biological sciences instead of the Darsanas to the Ayurvedic student would only result in the creation of a confused and distorted picture of the Ayurveda in the minds of the students. How can the advancement of Ayurveda be expected at the hands of these ill-trained and theoretically ill-equipped Ayurvedic physicians? They would not be proficient in either of the systems of medicine and their lot would be highly pitiable. It is, therefore, of paramount importance that the student of Ayurveda should not only have sufficient knowledge of Sanskrit but also a thorough grounding in the six Indian Darsanas. A study of the ancient and modern Indian Logic would also be a highly desirable equipment for the student as they would greatly help him to master his subject in all its technical details and make a proper presentation of the subject during discourses, lectures, debates etc.

The medium of instruction in the Ayurvedic colleges should be advisedly in Sanskrit. If it is not possible and practicable, then it may be done in the provincial language. The text-books must all, however, be in Sanskrit. Such of the Western subjects as are to be necessarily taught should be translated into Sanskrit by erudite scholars and only in teaching, the explanations should

be offered in the vernacular. A common syllabus should be adopted throughout India in the Colleges of Indian Medicine. The course must be of six years.

The hospitals attached to the colleges must not be merely a replica of the modern Western hospitals but should be provided with such things as are deemed necessary for reviving all the different methods of Ayurvedic treatment—pancha karma included. There should be a separate E N T section attached to all the hospitals wherein the different Ayurvedic remedies must be tried in the way enjoined by the Sastras and their actions noted, recorded and published. This is a field where Indian medicine if properly revived could show its immense superiority over all the other systems of medicine. In addition to these, the Government should establish an Ayurvedic section in the mental, maternity and tuberculosis hospitals to try Ayurvedic treatment in the Ayurvedic way by experts. This will greatly facilitate the students to gain practical knowledge in the various fields of medicine. Since the Ayurvedic physicians and surgeons of ancient India were known to treat effectively all the different diseases that are now treated in separate hospitals it stands to reason that the modern Ayurvedists should also have opportunities to gain sufficient practical and theoretical knowledge in all the different branches of Indian medicine.

In conclusion I briefly sum up my suggestions —

- 1 Ayurveda should be allowed to grow as an independent system of medicine
- 2 The modern drugs and chemicals must be investigated in the light of the Ayurvedic principles and absorbed into the system. For this purpose an Ayurvedic Research Institute should be established
- 3 Western surgery and anatomy should be learnt by Ayurvedic students with a view to developing and reviving Ayurvedic surgery and anatomy
- 4 The colleges for the study of Ayurveda should have teachers proficient in their subjects and the hospitals attached to them should have all the conveniences necessary for restoring Astanga Ayurveda
- 5 The students seeking admission into Ayurvedic colleges must have an adequate knowledge of Sanskrit
- 6 The college course should be of six years with one year of pre medical training for the purpose of giving

an elementary knowledge of the six Indian Darsanas, to the student.

7. The minimum general qualification for the student should be Intermediate with Sanskrit as second language or proficiency in Sanskrit with adequate learning in English.
8. There must be equality in respect of status, privileges, pay, allowances etc., between the Ayurvedic and Allopathic practitioners.
9. Equal opportunities should be provided by the Government for both the Ayurvedic and Allopathic Systems to develop in their own way.
- 10 To guide the destinies of the Indian system of medicine, there should be an autonomous Indigenous Medical Council consisting of experts in indigenous medicine.

I hope the above suggestions would be given their due consideration.

APPENDIX C-14.

OUTLINES OF SUGGESTIONS FOR THE SUCCESSFUL RESUSCITATION OF INDIAN MEDICINE BY THE TAMIL NAD AYURVEDA MAHAMANDAL, MADRAS.

We are of the opinion, that no plan of Public Health and Medical Aid in this land of ours, will be complete or capable of delivering the goods, unless it takes into account the deep rooted systems of Indian Medicine, which alone is even now catering to the needs of the huge majority of the population. So we, on our part, welcome the present move on the part of our National Government to extend recognition and render State-aid to the Indigenous Systems of Medicine; for we are convinced that but for the serious lack of State aid during the centuries past, Indian Medicine would have asserted and kept abreast of times in all its branches, in both its theory and practice. Let us also state in this connection that the fundamental principles, as adumbrated in our standard works, are complete and any new discovery and addition, are possible only in accordance with their principles.

As men of practical outlook, we concede that the practice of Ayurveda has been much hampered during the recent difficult centuries in our country's history, coupled with the deplorable

lack of State aid. Much of the valuable literature have been lost, and many have been mutilated, but fortunately for us, the fundamental principles are kept still intact. So it will be an uphill and essential task of the National Government to render all help it can, in the field of Research and resuscitation of Indian Medicine in all its branches. Till sufficient progress can be effected in this direction the minimum the Government can do, is to provide immediate full facilities and opportunities for the votaries of Indian Medicine on a par with those of Modern Medicine.

Then, it will be no empty dream of ours that some day in the future our country should be the mother that would give birth to a single all comprehensive system of medicine based upon the Tridoshas and Panchabhootas which will be capable of fulfilling all that Medicine need do to man, and which will embody all the various truths and useful elements that the knowledge of the entire mankind has hitherto discovered or devised.

We have no objection whatsoever to the application of Modern Scientific methods for the investigation of Indian Systems of Medicine in a truly scientific manner and with a desire for constructive and progressive development. But, we will be failing in our duty towards truth universal to man and towards our own science, if at this stage, we pass on without a warning that under the existing state of knowledge in Modern Science there will certainly occur, instances wherein some facts of the Indian Systems of Medicine are not either comprehensible or capable of explanation by the present limitations to their knowledge and that on account of this deficiency in the modern scientific knowledge, some facts in our ancient systems should not be regarded or condemned as unscientific or untrue. The Scientists of modern times have no other course than to put up with these facts either until they are disproved or have outlived their usefulness.

Research. In the domain of Research in the Indigenous Medicine, the Government should provide for two sets of Institutions viz,

- 1 For carrying on Research with a view to clarify the existing things and to enrich the various departments of clinical medicine, pharmacology, materia medica, pathology, diet, sick nursing, etc., literary research public health and prophylaxis in accordance with the principles and teaching of Indian Medicine.

- 2 Another type of Institution where persons well versed in the basic sciences of Indian Medicine, viz, the Darsanas, and also

the modern sciences, work together in striving to comprehend correctly the fundamental principles of Indian Medicine and trying to expound them in an understandable manner to the moderners and vice-versa, so that it may go a long way to build up an all comprehensive single system of medicine, bringing glory to our ancient heritage and culture.

(1) Training in Indian Medicine.

Such aid as the Government may extend for the training in Indian Medicine should fulfill twofold objects viz., (1) it should provide enough men trained adequately and practically equipped, to serve the people in the best possible manner through the agency of Indian Medicine, commensurate with the needs of the country; (2) it should provide for such higher and specialised training that will help to aid and maintain the growth of Indian Medicine in all its aspects.

So, the institutions where, theoretical and practical training is given, should be graded and must be calculated to produce not only the urgently needed army of able and suitably equipped men with the minimum working knowledge in the theory and practice of Indian Medicine, capable of rendering effective and useful medical aid and ministering to the public health needs of the country, but also persons who may be so well equipped and versed as to improve upon the existing things in the system and help its continuous advancement.

It is not enough, that such graded institutions only for training in Indigenous Systems are founded. There should also be separate institutions and such other facilities for persons qualified in Modern Medicine to have opportunities to learn and qualify in Indian Medicine and vice-versa. While founding such institutions, the Government should take pains to remove any step-motherly treatment creeping, in between the institutions of Indian Medicine and those of Modern Medicine. Further, they should create an atmosphere of complete freedom and equality among the persons trained. The curriculum and syllabus should be uniform throughout the country in all the training centres of Indian Medicine.

State control.

We welcome State Control in the sense that it will prove to be conducive, to the growth and advancement of Indian Medicine, in all its aspects, to the elimination of abuse or improper use of the knowledge of Indian Medicine and calculated to serve the best interests of the people and the science. But, control which will tend to curb or exercise destructive influence

on Indian Medicine or which may favour any other system or systems of Medicine at its expense or to its detriment can never be tolerated

Other measures to increase the usefulness of Indian Medicine

1 As an important measure we may suggest that standardisation if possible or at least maintenance of uniformity in the various drugs medicinal preparations, measures and weights, nomenclature etc of Indian Medicine for the entire country should be effected so that the present confusion in respect of the above may be removed

2 Herbaria museums forests, source of minerals etc should be specially reserved and established in the various regions of the country so that innumerable drugs of natural origin for the use of Indian Medical Practitioners can be grown under proper conditions, kept readily available, and preserved for the purposes of education identification, etc

3 The Government may themselves maintain pharmacies and other allied institutions for the sake of Indian Medicine so as to help the practitioners—both private and those who are under Government employ

4 Since the study and practice of Indian systems of medicine are so closely knit with the high noble culture of ancient Indian civilisation it should be the duty of the Government to foster the same It should be introduced as part of the General education from the very beginning The main object of this measure will be to bring out and maintain untarnished this glorious cultural heritage of our country

Synthesis

In our opinion an ultimate synthesis of all the systems of medicine is feasible and necessary and the Government should strive to achieve the same It should be the ideal before every scientist who is a lover of truth The principles of Ayurveda and Modern Medicine should have a common meeting place, though apparently they seem to be not meeting at all in their mode of approach to problems of health and cure In this conviction we are encouraged and strengthened everyday by the newer and latest discoveries of modern science which is always advancing towards reconciling itself with our ancient conceptions

But before such a synthesis is possible and ready the Government's only duty is to provide equal and ample opportunities and facilities for all the systems of medicine in the country, and also provide for the constant exchange of thought and

ideas, continuous working together in a spirit of comradeship between the votaries of the various systems of medicine.

Thus, we submit our broad outlines for the successful resuscitation of Indian Medicine and while working out details, we request that sufficient opportunities should be given to us and to the people of our way of thinking to assist the Government.

APPENDIX C-15.

THE PLACE AND SCOPE OF INDIGENOUS MEDICINE IN NEW INDIA. BY DR. INAYATULLAH SHAH, M.B.D.S. TIBBIYA COLLEGE, MUSLIM UNIVERSITY. ALIGARH.

Introduction

Today we stand on the eve of a great era in our national life. The political freedom has brought in its wake responsibilities and obligations—obligations which we owe to others as well as to ourselves. One of the most important and the most tremendous problem which we shall have to face in the near future and for which we should start planning in right earnest at the earliest is that of reconstruction and re-building of our physical, social, intellectual and economic life. The process of physical reconstruction has obviously a priority over others. Our economic rebuilding should essentially precede other programmes of national reconstruction, but even prior to the economic reconstruction, we must work for physical reconstruction, in the sense that no nation can get along with any plan of reconstruction without the essential basis of physical fitness and soundness of its physical frame and its security from physical weakness, disability, malnutrition or disease.

Medical education in New India

This problem is naturally connected with the problem of medical education and how it can be transformed, in order to adapt it to the physical needs and requirements of new India. Since long, there has been a widespread feeling of uneasiness concerning the state of medical education in the country and adapting it to the vital needs of the community life, but the political and other factors barred the way to a clearer visualisation of the problem and suitable measures for improvement.

There is hardly any need to point out the glaring inadequacy of the provision of medical aid for the masses.

The medical services have hardly touched the barest fringe of the gigantic problem and have not been successful in providing

efficient medical assistance even in the case of the middle and the higher classes

Need for re organisation

At present we stand on the the Great Divide, the parting of ways between the dead past and a new future, which is pregnant with new hopes and possibilities. It is high time that we should plan the systems of medical education on a creative basis in view of the needs of the masses and the opportunities for the development and research in the future. We should establish the system on sound educational principles, with a clear consciousness of the social implications of this type of education, which is so essential for national well being and progress.

Our newly gained political independence has stimulated intellectual activity in more than one direction and those who profess medicine are also *thinking furiously* and how they can help in its maintenance and in the working out of these principles within their particular field of interest and study. It has given rise to a controversy as regards the most suitable system of medical education for our country. The advocates of various schools like Homeopathic, Unani, Ayurvedic etc. advance arguments for the superiority of their own systems, but ultimately we shall have to exercise the courage to choose and reject, and work out a judicious reconciliation between the virtues and useful elements of the different systems.

The need of such a reconciliation between the Western and Indigenous systems has been felt by more than one authority, For example Dr O G, Gruner, M D, says

‘Deeper insight into the nature of man, and the wider outlook of a true philosophy does away with notions of superiority of new over old, making clear, as it does the necessity for combining and welding the two into one corporate Whole (Canon p 567) Again, The old teaching about Constitutions’ should undergo a mutual intergrowth with the knowledge of modern science, pervaded throughout with the fundamental teaching of Thomistic philosophy when there would emerge the beginnings of a possible system of modern scholastic medicine thoroughly logical plain, free of mystery, free of materialism, but not ignoring the so called ‘occult’ and metaphysical’ (Canon p 555)

The aim of the writer

The aim of this note is to present the special claims of the so called ‘Unani’ system of medicine and treatment, for its

proper recognition in the scheme of medical assistance in the future India

The writer after qualifying from the Lahore Medical College, has spent about twenty years of his professional life in closest association with the systems of Indigenous education both in theory and practice, and had the unique opportunity and privilege of studying the surgical and medical works of Indigenous systems in original. Also he has come to contact with some notable institutions and personalities in this line. His observations on the subject are based on personal knowledge and rich and varied study and experience covering twenty years.

The so called "Unani" or the "Greek System"

The title 'Unani' for this system of medicine is a misnomer. The European orientahsts prefer to call it Arabian medicine. In fact the system is neither Greek nor exclusively Arabian in the literal sense of the word. It is a reconciliation of the best elements of the old Graeco Roman, the Syrian, the Nestorian, the Persian, the Egyptian and last but not the least the Indian Systems. In the first wave of world conquest when the Arabs over ran the great empires and carved out a world dominion of their own, they organised a system of medical treatment for meeting the newly felt needs which arose out of the vast empire as well as the urge for the cultivation of learning. They had the intellectual integrity to associate the system of medical education which they had adopted to its main source. Hence the name Unani still clings to it.

As already mentioned, the architects of the system of Arabian medicine benefitted from Egyptian, Nestorian and Persian systems also, and these were in their turn again derived from the Graeco Roman or Indian sources. As a matter of fact, the Arabian medicine took certain elements from the Chinese sources also but the main source of this system were Graeco Roman and Indian only.

Indian Contribution to Arabian Medicine

The Indian Physicians and philosophers played a great role in the building up of this system in a very important stage of its development—the period when it was first passing out of the melting pot of several systems and crystallizing itself into a well defined pattern of medical treatment. Distinguished physicians and professional practitioners from India were invited to Baghdad to

occupy the highest professional posts in the realm, performance of hospital duties and translating and composing of works in Indian Medicine

The Islami or Arabian system is, in fact, an outcome of a magnificent cooperative effort on an international basis. It has a special significance because it was selective of the several systems of medicine current in those days and some of the greatest medical works belonging to Indian medicine have been preserved for us only in the form of their translations in Arabic, which had been made during the early period of the Abbasides.

Revival of Indigenous Systems and their special claims

There is a widespread feeling that the indigenous medical systems were sadly neglected during the British period and now they are coming into their own through the advent of the new era in our political history. The Government has been compelled to preserve and cultivate these systems by the pressure of public opinion.

These systems are more in conformity with the physical and climatic conditions and the temperamental and other qualities of the general population. They are inexpensive because they are not dependent on the foreign imports for their pharmaceutical requirements. In several cases the common people have discovered the superiority of the system through personal observation and experience.

Moreover the success and the advantages of the indigenous systems have been acknowledged by distinguished medical authorities outside India also. Sir Charles Pardy Lukis, I M S says

'Many of the empirical methods of treatment adopted by *hakims* are of the greatest value, and there is no doubt whatever that their ancestors, ages ago knew many things which are nowadays being brought forward as new discoveries' (Ayurveda, 1924,2,1,1)

Similarly Dr O G Gruner, M D says —

"It should be clear to the candid that our modern technique does not avail for 100 percent of cases for those who do not benefit at least an experiment with other systems of treatment should not be denied."

Also, "The scope of the subject is great, and its study, with intent to serious practical application, should not require an apologia" (Canon P 565)

Chronologically, the system of Islamic education belongs to the past but in its scientific attitude, at least in its palmy days, it was as refreshing in its outlook and approach as the modern system of medicine. According to Dr. Gruner:

“A perusal of the text of the Canon will show many passages which apply quite well, without explanation, in these days.” (Canon. P-17). Similarly Michael Maher writes:

“This ancient psychology and medicine is not so absurd, nor these old thinkers as foolish as current caricatures of their teaching would lead one to imagine” (Psychology—M. Maher).

Moreover there is a strong feeling in certain quarters that the knowledge would prove equally valuable even today. For example:

“Thus we see that Arabian Medicine rated at its lowest deserves careful study” (Dr. Donald Campbell. Arab. Med. Vol. I. page 50).

Similarly:

“So also there is the need today that this same wisdom should be reexpressed for this age by means of the new data which lie to our hands” (Dr. O. G. Gruner, M. D. Canon; page 2.) and again,

“In the ancient philosophy there is material capable of useful application today.” (Canon p. 19).

Again there are possibilities that the Indigenous systems may start sometimes a fresh train of thought or indicate a new direction for research and investigation, which may be extremely fruitful in its result. The following extracts well support this view.

“That modern investigations have placed us at an infinitely greater advantage does not invalidate the work as a whole. Its possibilities for suggesting thoughts of real value today are more realised the more one reads “between the lines,” and the present treatise does not exhaust them” (Canon p. 7).

“The more carefully we observe modern science the more evident does it become that just its terminology and subject of conversation is different. Things are seen from new angles, and things only surmised at are amenable to tangible description now.

“In fact, there occur moments, even at this day, when suggestive thoughts might be drawn from the Canon, to help in

studying the individual, tedious, or baffling cases, especially where the practice is far distant from the laboratories and appliances of modern Medicine " (Dr O G Gruner, Canon p 18)

"We do not regard the Thomistic philosophy as a bounday which sets limits to personal activity of thought but make use of his (in this case, Avicenna's) teaching as a starting point from which we may go further afield" (Cardinal Mercier, Manual of Modern Scholastic Philosophy (Footnote p 31)

Lost and ignored subjects of old system which deserve attention

The Islamic system was not something undeveloped or primitive in nature, rather it comprised almost all of those branches of science which form a part of the medical knowledge even at present Besides these it included a number of other subjects which have been ignored by the modern system of medical education for unknown reasons

The arguments which are advanced for the cultivation of the *Indigenous systems along with the system of Western education*, apply with equal force to the re discovery and re introduction of those lost branches which have been entirely ignored by the Western education and we are sure that our medical curriculum will be highly enriched by the addition of these subjects

The comprehensive nature of the old curriculum

The medical course that was prescribed in the case of indigenous education was far more comprehensive because it interpreted the medical process as a whole and not in piecemeal There was essentially, a philosophic basis to the practical study which ultimately led the pupil to study the ultimate cause and prescribe something which would introduce a basic transformation

The following extract will indicate the comprehensive nature of the medical syllabus in the olden days —

'As compared with all this (Modern Research) the speculative subtleties of former times appear both futile and unworthy of resuscitation But the ancient system was not as valueless as is so generally supposed Taking as an adequate criterion the first book of the Canon of Medicine of Avicenna and is fairly representative of the whole work, we find in the pages, references to many departments of human knowledge—Cosmology, anatomy, physiology and psychology, the various branches of clinical medicine, etiology, semeology, diagnosis, and prognosis, the departments of therapeutics, hygiene, dietetics, balneology, and climato

logy, in addition to *materia-medica*, pharmacology, and pharmacy. Moreover, the reader is presumed to be conversant with logic, criteriology, and metaphysics, " (Dr. O. G. Gruner, Canon p. 563).

Need of Research on old Clinical Records.

The old records in Islamic education provide excellent material for research work in the methods of psycho-therapy. A study of the Canon of Avicenna, for instance, could supply a number of cases which gives an indication of psycho-therapeutic treatment on the lines of shock therapy of the modern medicine. This has come into prominence quite recently, but it appears to be as old as the history of medicine. In my opinion the first book written on psycho-therapy had been composed by an Indian and was translated into Arabic during the Abbaside period.

Medical information in non-professional literature

The old Islamic literature, both scientific and literary, contains very interesting, very illuminating and exact accounts of medical anecdotes and clinical cases and the study of these can provide excellent training, more specifically to those practitioners who are expected to profess medicine in a country like India, where they shall have to rely on personal initiative and resourcefulness under conditions more or less obtaining in the olden days. Such cases also provide very interesting material for research workers in Medicine. A very large number of such cases is to be found in the standard classics of Islamic literature. The anecdotes describing these cases provide not only excellent information of scientific and technical nature but also give a rich background of the moral, historical and literary setting. The widespread knowledge of medical sciences in those days often leads poets who were not even distantly connected with medical practice, to describe history of cases accurately and exactly in verses.

Indigenous Drugs.

The excellent pioneer work done by Sir R. N. Chopra on indigenous drugs will help to reclaim many of these drugs from the oblivion in which they were tending to disappear. Extraordinary pharmacological and therapeutic properties of some indigenous drugs have been revealed while the talismanic myths which had collected around some have been exploded. There is, however, considerable scope for further research in this line and very valuable contribution to the Pharmacopoea can be made on

this basis. This type of work can be conducted with the cooperation of the Research Laboratories for Indigenous Medicine and for Western Medicine.

This study should be carried out both in the laboratory and the library. There is a rich treasure of reliable manuscripts on drugs and recipes which awaits adventurous researcher to unfold its treasure of experience which has accumulated through the practice and thoughtful labour of generations of skilful physicians. A special class of such works in Arabic deals with the drugs of Indian origin and an authoritative translation and commentary of the text will be a very valuable service to the science. The greatest minds of Islamic medicine have contributed to the subject and Al Beruni, the great exponent of the art and sciences of India has written a book on Pharmacy which gives an instructive discussion of Indian drugs with their Sanskrit terminology. The very name for the art of Pharmacy in the Arabic language has an Indian origin according to Al Beruni. The book is still in manuscript form and very few copies of this work are known to exist in the world and one of these rare copies is contained in the Aligarh Muslim University Library. The editing and publication of such texts would not only redound to the splendour that was 'Ind' but would be a genuine contribution to our knowledge of the science of pharmacy.

Classical Indigenous preparations

The study of compound medicines and classical preparations for example *Kushtas*, also provides a rich field of study and research work. Similarly these called *Majoons* and *Khameeras* are fermented medicines and as such are biochemical preparations and form a class by themselves and would be a stimulating challenge to the research worker in the line.

According to the old theory the drugs underwent a profound change in their properties on account of the changes in the season, atmosphere, climatic conditions, the time and method of the collection and storage, and even the movements of the planets etc. The different patients reacted in their own characteristic manner to one and the same drug, after their temperamental and general tone of the body. The seasonal and climatic variations had their influence on the general tone of the body which varied with different individuals.

Non Professional subjects in old curriculum.

The ancient physicians did not practice medicine exclusively. They were in addition, astronomers, logicians, 'philosophers,

mathematicians, climatologists etc. Simultaneously, they did not confine themselves to the immediate, obvious and alleged causes of the diseases, but they attempted to visualise the whole procession of events on a more comprehensive basis and held that the various forces of nature must be taken into account for the purpose of diagnosis and treatment. They would study, for instance, the influence of the planets on the nature and temperament of the patient and on the course of the disease. All this may look rather too obtrusive or metaphysical, but now that the modern science is fast reaching the confines of physical knowledge, it is high time that we should study the mysterious influence which have yet baffled the understanding of man and which these ancient sages had tried to analyse in their simple and empirical ways.

The subject of Diet and Abstinence

The problem of diet and restrictions on diet or abstinence is most potent with great possibilities for research worker. The modern medicine has conveniently rejected the principle of abstinence as an old world idea, but the remark of Dr Brown is never more pertinent to any other subject than this. He says —

“ Even if we rate the originality of Arabian medicine at the lowest, I venture to think that it well deserves more careful and systematic study ” (Prof E G Browne, M D, M R C P Arabian Medicine, p 115)

Modern Advancements a mixed blessing

The Modern aids in diagnosis, like the X rays, electro cardiograph or other electrical or mechanical appliances, and biological or chemical tests have much blunted the edge of individual resourcefulness and initiative and have transformed even the so called advanced type of practitioner into an automaton whose work has become extremely mechanised and therefore has been deprived of the valuable mental and intellectual discipline and individual skill. The machine and not the man behind the machine is of primary importance and the apparatus by its very nature, provides knowledge of one aspect or element of the process of the disease and fails to give a complete picture as a whole. This could be achieved only by a practitioner whose mental processes had been thoroughly aroused through independent work and initiative. The main objective should be

to develop in the student such a kind of intellectual discipline and professional skill that he might proceed in most cases, independently of the help of the apparatus. The use and help of that apparatus should be employed only as an accessory not because there is something inherently wrong in using the apparatus but because they prevent him from exercising his own initiative and capacity for judgement. The old practitioners in indigenous medicine received a type of training which developed in them an attitude of self reliance and independent judgement. This spirit should be captured once more by the Western system of medical education in our country and this can only be achieved when we introduce fundamental changes in the aims and objectives, methods and curriculum. This is another reason why our present system should undergo a reform.

Some other Considerations

When we contemplate the tremendous labour which has gone to the building up of the modern system of education in the country the mystical cycle of a seven years' course and the great expense in staffing and equipment, we are somewhat dismayed at the results. The average graduate of our medical colleges is not that fine reconciliation of intellectual discipline, knowledge and practical skill, the expected outcome of such a long period of training. In certain cases he picks up good knowledge of certain parts, but he fails to achieve the knowledge of the whole, and one of the aspects in which he fails, and fails disastrously is, to visualise the entire process in the social and economic perspective. He fails to develop a vital and living contact with the environmental conditions and is unsuccessful in adopting his methods of treatment, which are circumscribed by deeply laid grooves and is sustained by apparatus and equipment which is imported from the West and without which, he is entirely helpless and at the mercy of the foreign manufacturer.

The Need for Re-Adaptation

An urgent need is being felt all over the world for a better reorganisation of professional education and especially the medical teaching with a view to striking a more intimate correlation with the environmental conditions and needs of society at large, shortening the course utilising the times so as to assure maximum achievement in gaining intellectual and practical discipline.

The Medical Course

The work of reorganisation should not, begin with the medical course. It should include also the premedical course for the two years covering the F. Sc (Medical Group) work.

At this stage it is not possible to lay down a syllabus of the pre medical course in detail but it should be inspired by the best traditions of the old medical systems both Hindu and Muslim in this country.

Logic and Metaphysics

Both the systems demand a certain discipline and a fairly adequate training in reasoning and drawing conclusions. This specific training in reasoning and clear thought was imparted by teaching of logic and metaphysics which formed an essential part of the syllabus of a medical student in those days. Hence elementary processes of logical reasoning should be included in the pre medical course as based on practical propositions and illustrations related to life problems, especially those of medical practice.

Botany

The other subject whose teaching requires an immediate and vital relationship with the life needs of the people and the demand of medical education, is that of Botany. Under the old systems—both Hindu and Muslim—the pupil had an intimate personal knowledge of herbs and plant life especially those belonging to the local region. Huen Tsang the famous Chinese traveller, relates the story of a great teacher of medicine at the renowned university of Taxila, who gave an interesting test to his pupil for his final examination. He asked him to scour the countryside within radius of ten kos from Taxila and bring him a herb whose medicinal properties had not been studied by him with the teacher. The pupil received the diploma when he failed to discover a single herb unknown to him.

It is essential that the botany teaching in the pre medical stage, should have a vital relation with the plant life of the local region and the teaching should be conducted with the vital consciousness of the medicinal aspect of the study. In this connection the teacher's work can be conducted with co-operation of the Ayurvedic and Tibbi Colleges, which have made a special study of the subject.

Conclusion

A new day is dawning over this historic land of ancient lore and learning, a day of a newly felt power and prosperity and it is the great responsibility of all of us to see that we are fully armed physically and intellectually to wield the newly gained power. And none can play a greater part than the members of the medical profession in equipping India physically well for the great task of reconstruction and recreation. It is incumbent on all of us to pool our resources and research experience, whether that of Allopathic, Homeopathic, Ayurvedic or Unani system. It is the high function of the institutions like the Aligarh Tibbia College and others to estimate the value of their respective contributions in a scientific, dispassionate and realistic manner. Thus we will be building up the foundation of such a medical system in the country which will be universally useful and popular and which will redound to the ancient glory of India in this science.

That will be the dawn of a new India!

APPENDIX C 16

MEMORANDUM ON THE SCOPE AND NEED FOR RESEARCH IN THE
INDIGENOUS SYSTEMS OF MEDICINE WITH SPECIAL REFERENCE
TO INDIGENOUS DRUGS' BY DR B. MUKERJI, M.B. (CAL)
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Introduction

In all countries with an ancient civilization e.g., India, China, Egypt, etc., a system of medicine indigenous to the particular place exists and in some places (India, China), it is still catering to the needs of a large section of the local population. Due to the passage of times many changes have taken place, and though excellent records are available in such treatises as the Ebers Papyrus of Egypt (1500 B.C.) the Pen T'sao Kang Mu of China (1597 A.D.) and the Ayurveda and similar treatises of India (1400 B.C. to 400 A.D.), the present indigenous systems of medicine actually practised in these countries cannot be said to be truly representative of the older systems as recorded in the books referred to above. Much empiricism and superstition have been absorbed into the original core of ancient medicine during the course of centuries. This is particularly true of Ayurvedic medicine in India. It is not my purpose, to discuss the various systems of indigenous medi-

come all over the world but I intend to take up some aspects of the Indian systems of medicine as practised to day in this country. There are many aspects of the question which I will have to pass over, as I wish to focuss particular attention on their Materia Medica—a field of study with which I can claim to be at least partly familiar. My remarks with regard to the scope for research in the indigenous systems of medicine will therefore refer primarily to the problem of indigenous drug research rather than to the various theories of the causation of diseases, method of diagnosis, etc., as enunciated in the indigenous systems of medicine

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Scientific Status of Ayurvedic Medicine

Lack of knowledge of the Sanskrit language, in which almost all the books on Indian medicine are written, has prevented myself and many other interested students in the detailed study of the original classics and much of the information that is available to day from authoritative books are largely compilations handed over from one book to the other. My information is mainly derived from the English versions published by such oriental scholars as Wise¹, Royle², Wilson³, Ainslie⁴, Jolly⁵, Hoernle⁶, Sen⁷, Hessler⁸, Mukhopadhyaya⁹, Bangāsena¹⁰, Roy¹¹ etc. The historical and scientific background of Indian medicine, as it appears from the sources referred to above, is given below (see Table I) which will show the present position of the indigenous medicine vis a vis its origin from the time of 'Rig Veda' (200 B C), where the earliest mention of the medicinal use of plants is found. It is in the 'Ayurveda' that definite properties of drugs and their uses have been given in some detail. There are 8 Sections of this book dealing with major and minor surgery, general medicine, psychological medicine, pediatrics, toxicology, chemistry and sex psychology. Particular mention may be made of the chapters on general medicine, toxicology, pediatrics and sex psychology, which have been considered by competent scholars as containing some keen observations which have been fully borne out by modern scientific medicine. 'Susruta' and 'Charaka' are the next two important outstanding contributions on Hindu medicine, of which 'Susruta' is primarily a treatise on surgery and 'Charaka' a treatise on medicine and materia medica. In Susruta 300 bones and 200 joints have been described and dissection of the human body for gaining knowledge of visceral and surface anatomy was enjoined. The description of the menstrual cycle and the instructions regarding personal hygiene to be observed during this time seems quite

modern, even though these instructions were recorded near about the dawn of the Christian era., 'Charaka' further prescribed calcium-rich diet during the menstrual period and also described the management of delivery and the use of forceps. The operating room, according to him, should be clean and fumigated by disinfectant vapours before and after all operations. There is mention also of the use of a volatile anæsthetic. The technique described for operations of skin grafting, cataract couching, amputation, rhinoplasty, hernia, etc., are extremely instructive even to any student of modern surgery.

In 'Charaka', about 2000 vegetable remedies are described together with a few mineral drugs and animal remedies. The soil, the season and the gathering time of individual drugs of the vegetable kingdom are mentioned with such meticulous details that even modern students of botany can gain useful information from these descriptions. The methods of administration of drugs are fully described and bear a striking resemblance to those in use at the present time; even administration of medicaments by injection did not fail to attract attention. Natural and artificial feeding of the child, dental hygiene, methods of palpation of the radial artery, preventive medicine, etc., are to be found in various sections of the book.

TABLE I—HISTORICAL & SCIENTIFIC BACKGROUND OF INDIAN MEDICINE.

Pre and Early Christian Era	Up to about 1200 A.D.	After 12th century A.D.	18th century to date	Remarks
Higveda (2,000 B.C. ?) —First mention of drugs Atharvaveda (2,000-1,000 B.C. ?) —Mention of several drugs plus charms and amulets in the treatment of diseases Ayurveda (1,000-600 B.C. ?) (Science of life)	Good progress Contact with Egyptian Medicine ↓ Greek Medicine ↓ Roman Medicine	Period of decline & compilation ↓ Further mutilation of literature during invasion of India by Greeks, Scythians & Mohammedans ↓ Priesthood controlling medicine.	European invasion and advent of Western Allopathic System of Medicine	Indian Medicine is a mixture of Ayurvedic, Unani Tibbi & Allopathic Medicine ↓ A rich store of combined Materia Medica is therefore available for study. ↓ Promising field as fruitful results are already obtained.
(a) Salya Tantra (e) Kamara Bhritya (Major Surgery) (Pediatrics) (b) Kalakya Tantra (f) Agada Tantra (Minor Surgery) (Toxicology) (c) Kaya Chikitsa (g) Rasayana (General Medicine) (Chemistry) (d) Bhuta Vidya (h) Bali Karana (Mental Diseases) (Sex Psychology)	Arabian Medicine (Charaka Samhita translated in Arabia) ↓ Chinese Medicine	Dissection given up, possibly as a result of the Buddhist doctrine of Ahimsa. ↓ Influx of Arabic Medicine with the advent of Muslim conquerors		
Charaka Samhita (1,000 B.C. 100 A.D. ?) Vegetable, Mineral & Animal Drugs — mentioned Preventive Medicine, Dental Hygiene, Dietetics, Pulse in Disease, etc., recorded.				
Susruta Samhita (800 B.C. 400 A.D.) (a) Sutrasthana (d) Chikitsa Sthana (b) Nidana Sthana (e) Kalpa Sthana (c) Sharira Sthana (f) Uttara Sthana Bhagbhata Madhavakara Chakradatta Harangadhra Kanada Sankaradeen Bhagavata ↓ Dhwanandana—(50 B.C.-300 A.D.)	(Between 400 B.C., 200 A.D.)			

Following Charaka and Susruta, a number of other valuable books on medicine and surgery were published. These are mostly of the nature of 'special' treatises, some dealing with anatomy and dissection of the human body in more detail (*Vagbhata*) and others describing epidemics and their prevention (*Chakradatta*) [See Table Page 538]. It is not necessary to go into more details regarding the numerous evidences of the high standard of the ancient Hindu medical culture. The examples cited will show that ancient Indian medicine was not based on pure empiricism, but was permeated with a scientific spirit, as evidenced by a desire, by observation and experiments, by induction and deduction, to probe the secrets of nature and to build thereon a rational system of medicine,

Rise and Fall of Indian Medicine

From the time of 'Charaka' and 'Susruta' up to about 1200 A.D., Hindu medicine made good progress so much so that it not only became the acknowledged system of treatment all over India then known, but its influence extended to Egypt, Greece, Rome, Arabia and China. Available evidences indicate that the knowledge of the Hindu physicians in the domain of drug therapy and toxicology during this period was far in advance to that of others. Charaka's fame travelled into Arabia and at least part of his treatise on medicine appears to have been translated into Arabic. Avicenna, the renowned writer on Arabic medicine, quotes him as 'Scurak' and Rhazes, who was prior to Avicenna, calls him 'Scurak'. The early contacts of India and China are recorded in Buddhistic works. There is also evidence to show that external trade existed between India and Rome for many centuries and this drug trade was in such enormous proportions that Pliny actually complained of the heavy drain of Roman gold to India in buying costly drugs and aromatic spices. There is reason to believe that many Greek philosophers like Paracelsus, Hippocrates and Pythagoras actually visited the East, and helped in the transmission of Hindu culture to their own countries. Jacolliot remarked "India, that immense and luminous centre in olden times, was in constant communication with all the people of Asia, and all the philosophers of antiquity went there to study the science of life.

After this period, however, the glories of Hindu medicine rapidly declined. During the invasion of India by the Greeks, Scythians, and Mahammedans successively, a good deal of the existing Ayurvedic literature was mutilated or lost. Priesthood became the repository of all the medical knowledge and this pro-

bably was largely responsible for the introduction into Ayurveda of many charms and amulets. Gradually, as a result perhaps of the Buddhistic doctrine of 'Ahimsa', touching of the dead body was considered sinful and dissection as a basis for the study of anatomy and surgery was given up. With the advent of the Muslim conquerors, Arabic system of treatment (Unani Tibbi system) became the State system of relief and the Ayurvedic system was pushed to the background. During this transition period, there was a great deal of intermingling of the *materia-medica* of the Ayurvedic system and the Unani Tibbi system. With the advent of the Europeans the decline of the older systems of medicine was marked with still further interchange of *materia medica*. The present indigenous medicine therefore is a hotchpotch produced by the irregular mixture of the ancient Ayurvedic medicine with Unani Tibbi and Allopathic systems. Though hardly anything of the original system is existing to day, the process of intermingling through centuries have left India with a rich heritage of a very varied *materia medica*, which is well worth careful investigation.

Ancient Medicine's Heritage to Modern Medicine

As an illustration of the extent of indebtedness of 'modern' medicine as practised in the second quarter of the '20th' century to ancient medicine of pre and early Christian Era, I have drawn a drug map of the world showing the remote corners of the globe from where certain drugs were originally derived and which had since been incorporated in modern therapeutics in some form or other (Vide Journal of IMA Vol XVI No 8 May 1946). This will indicate in no uncertain terms that modern medicine still owes much to the people of the past for the accumulated knowledge of many remedies and cures. While it cannot be denied that empiricism and superstition form a large part of the ancient indigenous systems of medicine, there are simultaneously many keen observations and experiences recorded which are of sterling value. An example can be found in the discovery of vaccination for the prevention of Small pox. Early records definitely indicate that Indians and possibly also the Chinese knew about the immunity from Small pox that could be attained from the inoculation of Cow pox debris. In fact, Jenner, the discoverer¹ of vaccination, obtained the information regarding immunity from the milk maids and then conceived the idea of inoculation, which revolutionized medicine of the 18th century (1796). This does not, however, minimise the value of Jenner's discovery, but only shows that many apparently non scientific doctrines and

records of the indigenous system might possess a core of real truth, which can be analysed and confirmed by modern science. It has been repeatedly seen, particularly in the realm of ancient materia-medica, that there are many century-old remedies which fully deserved the reputation accorded to them as 'cures', when judged by the critical yard-stick of modern pharmacology and therapeutics. A very convincing example is the 'rediscovery' of Ephedrine and Tubo-Curarine from the ancient Chinese materia-medica of 9000 years ago and the African and South American folk-lore medicine of at least 2,000 years old respectively. Many such examples can be cited which will show the wisdom contained in the ancient systems that can still be gathered and absorbed into the modern progressive system of medicine. A quotation from Dr. Cummings,¹² ex-President of the U.S. Pharmacopoeia Commission, is considered apt in this connection. "Any system of medicine or for that matter, any ancient usage or custom that has held its own for generations usually has something at the back of it, no matter how little it appears to be supported by modern science. For generations the fact that the American Indian hunters always chose the liver and the whitemen the meat, when the animals they trapped or killed were divided, was quoted as proof of their ignorance and primitive development, yet in the last 5 years, the great nutritive value of liver has come to be recognized and is universally prescribed in cases of anæmia".

Problems of Research in Indigenous Systems of Medicine

One of the greatest difficulties of scientific research in the field of ancient medicine is that many learned exponents of these systems attach a great deal of sentiment to the teachings contained in the pages of the older treatises such as Charaka and Susruta, and consider these as "inspired doctrines" incapable of improvement by modern researches and the 'man-made' science of the 20th century. Any effort at critical evaluation, particularly by those not belonging to the Ayurvedic system of medical practice, is considered as nothing but therapeutic nihilism. This School of thought favours the wholesale revival of the old systems with all their paraphernalia of 'compounded medicines', 'crude methods of pharmacy', 'polyglot recipes', etc. Modern practitioners of the Western system of medicine, on the other hand, have frequently pooh-pooed the idea of research in the indigenous systems, which are considered to be nothing more than an assemblage of facts and information based largely on folk-lore, and which does deserve the serious consideration of modern science. What is needed to-day in any discussion about ancient

systems of medicine is not sentimental or extremist thinking but a balanced, critical and open minded attitude which would permit a reasoned appraisal of the teaching and observations of the indigenous systems and adoption into modern medicine of those legacies only which can be fully supported by modern science. A stagnant and static system for well nigh 1500 years is bound to get mixed up with many things of questionable value and doubtful utility. There is no harm in recognizing this and devising ways and means of revitalizing indigenous systems of medicine taking full advantage of the modern developments in physico chemical and biological sciences. Only by such means can any progress be achieved.

Planning of Research in the Indigenous Materia-Medica

The question now arises as to what is the best way of investigating the rich materia medica left to us as the heritage of the indigenous systems of medicine. From the empirical knowledge of a crude drug (stated to be a good remedy) to its use in rational scientific medicine, is a long way and must pass through (1) Botanical identification, (2) Chemical examination, (3) Pharmacological and toxicological assay and (4) Clinical trials (see Schematic Programmes, Procedures 1 & 2, p 544). All stages through which modern scientific investigation should proceed are time consuming and require a 'team work' of several groups of scientists, each experts in their own fields of specialization. No haphazard methods of approach by individuals or even single institutions are likely to succeed.

In India, study of the indigenous materia medica according to modern scientific lines (as distinguished from purely 'clinical trials' carried out in the late 19th and 20th century) was first started at the School of Tropical Medicine, (Chopra School) and at the Haffkine Institute, Bombay (Cairns, Mhaskar and others) in the second decade of this century. The problem was approached from the following angles — (1) Investigation of the possibilities of utilisation of pharmacopoeial and allied drugs growing in India in place of the 'official' ones mentioned in the British Pharmacopoeia and other recognised pharmacopoeias. This led, to the finding of several allied species of plants of known value, such as the various species of *Hydnocarpus*, Indian *Senega*, Indian *Digitalis*, *Belladonna*, *Squill*, *Gentian*, *Rhubarb* etc., as substitutes for the corresponding pharmacopoeial species. (2) The trial of specifics for various diseases, such as *Holarrhena*, *Rauwolfia*, *Butea*, *Alstonia*, *Cassalpinia*, *Adhatoda*, *Punaguaya*, *Meha*, etc., for dropsy, dysentery, malaria etc. Some of these

have received widespread attention and are adopted in modern medicine while others have been discarded as being of little value. (3) The search for new active principles, especially drugs of alkaloidal character, glucosides, tannins, etc., such as Ephedrine, Ajmaline, Berberine, etc. (4) New sources of therapeutic agents of proven value, such as the various solanaceous plants used in the preparation of atropine, and new sources of scopolamine, ephedrine, etc.

A critical survey of the achievements so far recorded from both the Calcutta and the Bombay centres of research would seem to indicate that outstanding results, which could place India in the scientific map of the world, have not yet been achieved. There is nothing to be disappointed in this. The indigenous system of medicine provides such an enormous field of study (over 2000 remedies) and so little investigation has been done (about 60 drugs) that no positive opinion can be justifiably given regarding the achievements or failures of these ventures. However, the work that has been done has brought into prominence the merits and qualities of certain drugs (though only a few) and have shown that these will form valuable additions to modern medicine if brought into general use. It has also shown clearly the worthlessness of a large number of the so-called "cures" of the indigenous materia medica. Drug research is a long-term programme. Only the path has been indicated till now. This should be followed with more zeal and intensity by several teams of researchers, supported by adequate funds. No quick results can be expected.

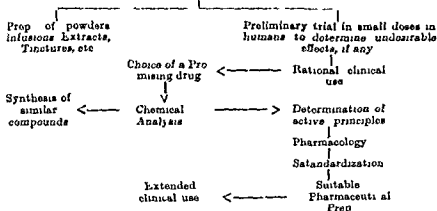
Newer Orientation in Indigenous Drug Research

So far, Indian drug research has been largely concentrated on the search for active principles in the vegetable materia-medica. The animal drugs and the various remedies for deficiency diseases and inorganic mineral elements mentioned in the indigenous systems have not received careful attention. While modern medicine is turning to liver, stomach, insulin from the pancreas, fibrinogen from the lung and blood, gamma globulin from blood, vitamin A from the eye and fish liver oils, adrenaline, thyroxine, parathormone, plasma, serum, vaccines, choline, etc., it is remarkable to find that many animal tissues, and organic glands such as, blood, bones, neck glands, heart, liver, lung, marrow, kidneys, pancreas, bile, urine, etc., had been freely used in the indigenous systems of medicine. Mention has also been made of a long list of crude remedies for nightblindness and a condition akin to 'beri-beri', which would tend to indicate

that the ancients had made keen observations on conditions produced by vitamin deficiencies. Similarly, the recommendation for the use of a large number of green and other plant sources containing vitamin C, such as capsicums, brassicas, pumelo and mustard leaves, in the diet of certain types of dental affections and skin conditions cannot be brushed aside as simply fortuitous coincidence. Indigenous remedies claiming to have power to increase human fertility are often associated with magical ideas but in view of the increasing volume of recent scientific work in this field, it is hoped that information may be forthcoming whereby these claims can be at least partly substantiated. Present knowledge justifies to some extent the claims for human placenta, marrow of animals, pig's pancreas and testicles, and pregnancy

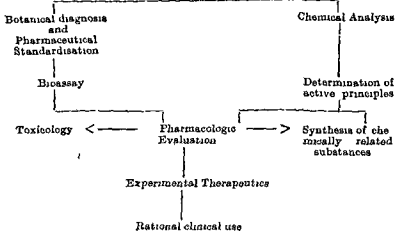
SCHEMATIC PROGRAMMES NECESSARY IN THE EVALUATION OF A DRUG

Procedure 1 —> Crude drug used empirically



Or

Procedure 2 —> Crude drug used empirically



urine as aphrodisiacs and sex stimulants. The importance of inorganic, mineral elements in foods and their function in maintaining body metabolism was apparently recognised and would be seen from the fact that many recipes are described containing 'bone powder', 'bone marrow', etc. which are rich in calcium salts. Many foods rich in copper, and iron in organic form were recommended in diseases which appear to be conditions caused by anaemia or pregnancy. Deficiency of iodine was definitely known to cause goiter and this has been used repeatedly in the treatment of 'swelled neck'. Further, it has often been claimed that the action of a drug in a fresh condition is different from the action of a drug in a dried and stored condition. If this view is correct, most of the findings recorded by modern methods of chemical, pharmacological and clinical trials of indigenous drugs would need re-examination. While it is very difficult to find any palpable difference between the action of a fresh drug and a stored crude drug, excepting perhaps that the fresh drugs would contain certain amount of vitamin C, particularly if green parts of plants are used, this in itself is not adequate to explain the various changes that have often been reported by the savants of Ayurvedic system of medicine after the administration of fresh juices. If there are any changes at all, which it is difficult to prove by the application of modern science of physics and chemistry, it is nevertheless a very age-old and interesting observation which needs to be critically surveyed. It is known for example that the reaction of a total crude drug may be quite often different from its isolated active principles, thus the action of opium is definitely different from the action of morphine and similarly, the action of a large number of crude purgative drugs is different from the action of its isolated active principles. e.g. the action of aloin as distinguished from the whole drug Aloe. All these call for a new study of the old empirical methods from the angle of modern organo-therapy, deficiency diseases and imbalance of metabolism which has not so far been done (Read¹³). Such evaluation by new standards of modern physiology and biochemistry of both foods and drugs (as no distinction is made between foods and drugs in ancient medicine) is likely to lead to further interesting results than have so far been obtained through a study of only the active chemical principles of drugs and their pharmacotherapeutic application. Maintenance of a healthy balance of the normal body processes is just as much a function of medicine (and this aspect was more important in ancient medicine) as drastic curative treatments through the introduction of potent foreign substances into the system.

How to Effect Revitalization of Ancient Materia—Medica

From the above, it would appear that there is a vast field for research and investigation in the indigenous materia medica. Though admirable efforts have been made by isolated workers or by one or two institutions only the fringes of a complicated problem have so far been touched. Modern science and its methodology should be applied with patience and sympathetic understanding to unravel the truth of early teachings and clear away the unnecessary mass of foliage which to day covers some of the luscious fruits of ancient medicine. A free India, aware of the tremendous political significance of indigenous medicine, cannot afford to neglect one of her great legacies of the past, which when properly harnessed, can deliver the greatest good to her suffering masses.

Establishment of a Central Institute for Drug Research-

A good way of approaching the problem of indigenous drug research is through the creation of a 'Central Institute, specifically for drug investigation in India, as has been suggested by the writer¹⁴ in 1945. In this institution, arrangement should be provided for the study of indigenous drugs under co-ordinated supervision from all angles—botanical identification, chemical analysis including isolation of active principles, pharmacological study of the active principles and determination of their poisonous properties, if any, on the human system, and clinical trials under controlled conditions in human patients. The co-operation and collaboration of the learned exponents of the Ayurvedic and Unani Tibbi systems should be sought to initiate newer lines of investigation which appear more promising than others. Sanskrit and the Arabian and Persian treatises on ancient medicine should be read and translated from the original by those versed in modern medicine, if only to check the many mistakes which have crept into modern books. In addition to a 'Central Institute', peripheral units on more or less similar lines on a less ambitious scale should also be set up in various centres of active work in the Universities and other research institutions. Each centre should be permitted free scope, the central organization preventing duplication of efforts and maintaining useful liaison to guide work in most profitable channels. For such a project, funds would be needed but the State should come forward to finance the scheme aided wherever possible by private munificence.

Compilation of an Indian Pharmacopoeia—It has been repeatedly stated by competent scholars of ancient systems of

medicine, that the materia medica, particularly the vegetable herbals, constitute the richest heritage and this is a mine of knowledge which needs probing into more enthusiastically than other branches. A natural corollary to successful work in this field is the compilation of an Indian Pharmacopoeia which will contain all indigenous drugs of value, properly standardised for use on an extensive scale by modern physicians, side by side with up-to-date chemotherapeutic and synthetic remedies of the Western system of medicine. A preliminary effort in this direction has already been made by the Government of India in publishing the 'Indian Pharmacopoeial List'¹⁵ as a supplement to the British Pharmacopoeia, 1932. Such work needs strengthening and further rationalisation by constant additions and deletions as results of active research in the field of indigenous drugs become gradually available. Once a standardised Indian Pharmacopoeia can be compiled and is made acceptable to all practitioners of medicine in India irrespective of whether he belongs to the Ayurvedic, Unani or Allopathic systems, more indigenous drugs would automatically be employed in therapy with resulting cheapness in the cost of medical care. For the treatment of 'minor maladies', which constitute by far the largest number of sicknesses, indigenous drugs and their comparatively crude preparations are just as effective as many costlier medicines of the Western Pharmacopoeias. However, as indigenous drugs contain hardly any worth-while remedies (except quinine) for protozoal, bacterial or virus diseases, the Indian Pharmacopoeia must also include remedies of the Western system which have ushered in a new chapter in the cure of many diseases caused by such germs. A National Pharmacopoeia which leaves such internationally known specifics as sulpha drugs and penicillin out of consideration will not be worth its name and will do incalculable harm to its suffering millions.

Unification of Indian Systems of Medicine.—Once an agreed and standardised Indian Pharmacopoeia is produced and is maintained in a 'living' condition by worth-while additions and deletions at regular stated intervals through contributions emanating from the nation's own research centres in indigenous drugs, the century-old therapeutic barriers between the Ayurvedic medicine, 'Unani-Tibbi' medicine and Western (Allopathy) medicine would disappear. The unitary concept thus brought about in the therapeutic field would permit the exponents of all the medical systems in India to look to the medical theories of other systems with open minds and through the eyes of modern

science It would not take long for the learned followers of the Ayurvedic and the Unani systems to realise that many of the ideas and practices recommended in their century old systems cannot justifiably be supported by modern physico chemical and biological sciences Modern scientific medicine has explained the causation of diseases such as malaria, kala-azar, leprosy, tuberculosis, pneumonia, filariasis, etc., etc with such clarity and convincing proofs that it is no longer possible even to indirectly take shelter under the 'Tridosha' (*Vayu, Pitta, Kapha*) theory of disease origin as enunciated in the Ayurvedic treatises The soil (body and its metabolism) is undoubtedly important in disease processes and this was rightly emphasised by the Indian systems of medicine but it is a far cry in the 20th century not to recognise the 'seed' or the 'germ theory' of disease In fact, many practitioners of the indigenous systems are so much influenced with the modern teachings of Anatomy, Physiology, Bio chemistry, Pharmacology and Pathology that they are actually supporting instruction in these sciences to their juniors and in their medical institutions To inculcate the principles of modern science with all their analytical methods and precision and recording of experimental observations, and then to ask these students to pin their faith, out of reverence only, to the doctrines of 2000 years ago,—many of which cannot be proved by physico chemical and biological sciences of to-day—is to ask something which can never be achieved The result of this hotch potch teaching is the production of irrational practitioners who have no allegiance to any science but who recede more and more into the domain of quackery and charlatanism Science is one and indivisible To halt the progress of non scientific medicine in India, the inevitable thing to do is to bring about a fusion of all the indigenous systems of medicine in such a way as to retain the best of every system and build a consolidated system of modern medicine thereon

Adoption of 'Modern System of Medicine' as State System of Relief

Medicine has no limits and boundaries and has progressed through centuries by looking backward as well as forward, The most suggestive path of progress therefore is to study the methods of old systems of medicine side by side with modern science The scientist knows more than any other how to keep an open mind and if he is permitted to sift the claims of all systems of Indian medicine with the sieve of 20th Century science, only the real and worth while remedies will be left which

will be available for the alleviation of human suffering not only in India but also in other parts of the world. Distinctions, often drawn between Indian system of medicine, Chinese system of medicine, Arabic medicine, Allopathy, etc., are really superficial. Modern medicine stands aloof with open arms and adopts everything of value from all systems—ancient or recent, without distinction—and builds on all such data a system which has international application and significance. Time has now come when India should consider the adoption of 'modern medicine' (not Western Medicine or Allopathy), in place of the various older and time-honoured systems (Ayurvedic, Siddha, Unani, Tibbi, etc.), as the recognised State system of medical relief. It is hoped such a system could be evolved by joint effort of the learned exponents of all the indigenous systems of medicine in India. The royal road to this consummation is through more intensive indigenous drug research on modern scientific lines.

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